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THE COVER

The Society of Professional Engineers of the French Republic issues a monthly bulletin, which it very kindly sends to members of our Society.

The French Society recently adopted a certificate of membership, a facsimile of which we have reproduced on our cover. The similarity of the illustrations to those on our copyrighted insignia, "Taken From Nature—Given to Society", is evidence that the French Engineer's concept of his place in the scheme of things is much the same as our own.

We extend the hand of friendship across the ocean to our Brother Engineers in France!

Translation of cover:

FRENCH REPUBLIC
SOCIETY OF PROFESSIONAL ENGINEERS
(65 Rue du Rocher, Paris)

DIPLOMA

The president of our council, in virtue of powers conferred upon him Nov. 12, 1938, declares that, after an examination by the committee of references, duly legalized, which have been presented to him and placed in his files,

Mr.
born at
has been admitted on as Associate Member of the Society of Professional Engineers.
In acknowledgement of this, the present diploma, No. , is granted to him.

Paris, the
President of the
Council of Administration

The Secretary General

Subscription Rates

$1.00 a year, in advance to members of the National Society of Professional Engineers and its affiliated Societies, $2.00 a year, in advance, to non-members. Single copies, $.25.

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EDITORIAL • • •

VOCATIONAL GUIDANCE

We were recently asked to speak to a high school student body on "Engineering as a Career", one of the topics in a vocational guidance series. Prior to the meeting, we asked the school principal if there were any printed matter which had been prepared for such talks. We were handed sheets, well written, well prepared, on the duties and functions of electrical engineers, civil engineers, etc.—explaining how the branches were being broken down into sub-branches, each of them a specialty, such as highways, sanitation, etc.

We spoke—and emphasized engineering as a profession, explained its requirement of a social consciousness, of integrity, of the absolute necessity of knowledge of mathematics, of the desirability of a speaking knowledge of sound English, of the romance of the profession, of the constantly increasing educational requirements, of the diversity of problems, of the average financial return, of the value of a good sound body in giving a natural advantage, of all variety of problems confronting a young man or woman at high school age looking forward to choosing a career.

We anticipated from those so young, 14 to 18, that there would be a lack of attention, an anxiety to get to the end of the talk and go onto the playground—BUT —instead, we were met with the full realization that each youngster in the group was listening attentively: thinking deeply; sizing us as an example of the product of an engineering training. After the talk, several came to us. Upon questioning, we discouraged three, and encouraged one, to follow his desire to be a professional engineer. One of the others really wanted to go in with his Dad in a trade—steam fitting. The whole affair made us reflect—"We chose the career of engineering without first having met or talked to an engineer".

We wonder if, in the program of our local chapters, there could not be included meetings with high school students. It should be done with caution—and with the full sense of responsibility it entails—and only by those fully capable of representing the Chapter.

But certainly boys who select a profession—a life's work—based merely upon a desire, or upon the advice of a teacher—deserve the privilege at least of talking to one practicing the profession he is considering. If we cannot go to them, let us at least open the door, so they may easily come to meet us.

ROBERT HALL CRAIG
Editor

NATIONAL SOCIETY NEWS

NEWS "HERE AND THERE"

NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS
NATIONAL PRESS BUILDING
WASHINGTON, D. C.
W. S. Conlon

March 28, 1939

News Letters—These letters are addressed to all officers of NSPE and our affilitated state societies, a total of 69 officers.

Civil Service—

U. S. C. S. C. Original announcements No. 24 and No. 25 have been amended to show that age limits are waived for persons granted military preference and for permanent employees in the classified service—Applications will be rated as received *until December 31st, 1939,* for (Announcement No. 24) Naval Architect, Associate Naval Architect, and Assistant Naval Architect, $3800, $3200 and $2600, respectively, a year. Also (announcement No. 25), Marine Engineer, Associate Marine Engineer, and Assistant Marine Engineer, $3800, $3200 and $2600, respectively, a year.

For information address: U. S. Civil Service Commission, Washington, D. C.

New York—Civil Service application and further information on the enclosed announcement (Assistant Engineer (Designer) Grade 4, Board of Water Supply, salary $3120) may be had by addressing the Civil Service Commission, City of New York. Applications will be received commencing April 3rd, to 4 P. M. April 17th, 1939. Those from distant states may wish to file this material with their appropriate committee. Note: A license as a professional engineer is a prerequisite. Copies of the Civil Service announcement because of the limited number are distributed to state secretaries only.

Membership—The enclosed form and sales letter has been addressed to over 1500 members of NSPE who have paid current dues between January 1 and March 17, 1939. This is the highest percentage of dues paid in this period since NSPE has been in existence. Please hand the sales letter to a prospective member.

Professional Engineers License Laws—

Maryland—There have been two hearings. The Mechanicals and Electricals, Baltimore Sections, are actively opposed; however, chances of enactment appear to be favorable. The senate bill is No. 206.

District of Columbia—A hearing was held before the Senate sub-committee of the District of Columbia March 9th. The bills, S. 1128 and H. R. 4792, are being considered by the Committees.

Legislation—National—

A bill, H. R. 4798, has been introduced by Congressman D. L. O'Toole, 9th District, New York, March 6, 1939, to prevent and make it unlawful to practice law before Government Departments, Bureaus and Agencies, etc., by those other than licensed attorneys at law. Acountants are (*and professional engineers should be*) exempted as the bill gives the power to prescribe rules and regulations to Department heads. Professional Engineers thus may be deprived of the right to appear before the many Government agencies if a loose interpretation is placed on the intent of this bill. Specific exemption for professional engineers has been requested by N. S. P. E. in this case as in similar bills proposed in the past. Any one of the many Department heads with or without qualifications to interpret what constitues "the practice of law" may for example disqualify a "professional engineer" representing a client before any of the Departments. We do not want to practice law, but neither do we want to spend our time teaching lawyers engineering.

Special Note—Since this letter was started we received the following letter from Congressman O'Toole:

"My dear Mr. Conlon: March 28, 1939

Pursuant to the conversation which you had with my secretary, Miss Bailey, during my absence at the hospital, allow me to assure you that when H. R. 4798 reaches the floor the changes desired by you and your organization will be made.

With warm personal regards, I am
Yours sincerely
Donald L. O'Toole
Member of Congress."

Please address a letter to Congressman O'Toole and record your appreciation for his consideration of NSPE's request on behalf of the engineering profession. If you do write kindly forward a copy of your letter to NSPE files.

N. S. P. E. NEWS?

Would you prefer that we discontinue furnishing these news letters?

Newswhile it's news—to those blessed with vision and *resourcefulness* will stimulate action. Effective action in the furtherance of our objectives in State "X" or Chapter "Y" if immediately brought to the attention of all the chapter officers will furnish food for "throught" and undoubtedly result in action. What do you think?

March 27, 1939

News of interest to your legislative committee—
NEW YORK—
"Joseph W. Sanner, State Counsel
Home Owners' Loan Corporation
270 Broadway, New York, N. Y.

Feb. 17, 1939

"My dear Sir:

Your letter of February 9, 1939, asking for an opinion concerning the necessity for employment of licensed professional engineers and architects by Home Owners' Loan Corporation has been received. You ask, with reference to the fee reconditioning inspector:

"1. Is he required to be a licensed engineer or architect as provied in Articles 55 and 56 of the Education Law?

"2. Is it a violation of any state law for a fee reconditioning inspector, who has retained a licensed engineer or architect, to pay such engineer or architect a percentage of his fee or a flat fee keeping in mind the fact that the inspector is himself paid a percentage of the cost of the job.

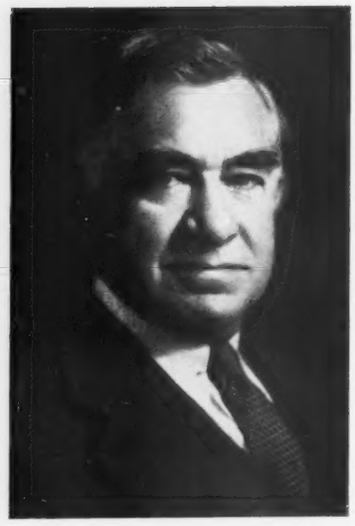
"Replying to your first question I should say that a fee

(Continued on page 24)

Testimonial Dinner Planned For

Engineer John Charles Riedel

Our National Vice President



JOHN CHARLES RIEDEL

Arrangements are being made by a large group of outstanding engineers for a Testimonial Dinner to be given at the Hotel Commodore, New York City, on May 8th, 1939, to John Charles Riedel, Chief Engineer of the Board of Estimate and Commissioner of City Planning of the City of New York.

The career of Engineer Riedel has been signalized by a singular devotion to the advancement of the well-being of the engineering profession and its members. His interest and activities in organized professional endeavors is attested by the facts that he has served with notable distinction as the President of: The association of the Engineers of New York; the Municipal Engineers of New York; the Kings County Chapter of Professional Engineers; the New York State Society of Professional Engineers. At present he holds the offices of First Vice President of the National Society of Professional Engineers and First Vice President of the Metropolitan Section of the American Society of Civil Engineers.

This Testimonial Dinner is given in grateful recognition of the services he has rendered to the profession and as an earnest expression of the affectionate esteem and high regard in which he is held by his fellow engineers.

Invitations to speak have been extended to Hon. Fiorello H. LaGuardia, Mayor of the City of New York; Hon. Raymond V. Ingersoll, President of the Borough of Brooklyn; Gano Dunn, President of Cooper Union; Dr. D. B. Steinman, Past President of the National Society of Professional Engineers. Hon. Arthur V. Sheridan, Commissioner of City Planning and Past President of the National Society of Professional Engineers, will act as Toast-Master.

The Engineers of the Metropolitan Area are responding enthusiastically in assuring a notably large attendance at this dinner.

The membership of the arrangement committee has been augmented to include to date the following representatives of the engineering profession:

Joseph A. Vertefeuille, Chairman,

W. L. A. Arctander, Irving A. Ashworth, Dean George F. Bateman, Andrew Biagini, Philip F. Brueck, George H. Bruns, Charles W. Burke, Ignatius W. Conway, A. C. Codet, Rodney E. Cook, Patrick M. Corry, Ladis Csanyi, George A. Dorfman, Albert T. Ehringer, James F. Fairman, Ernest F. Fox, Richard H. Gould, Arthur J. Griffin, Leslie G. Holleran, Charles Jellinek, Andrew K. Johnson, F. V. Laverty, Harry W. Levy, Frederick W. Malkmus, Harry P. Moran, William D. Murray, Frank H. Nowaczek, Walter E. Nutt, Joseph C. O'Dea, J. Franklin Perrine, Fred H. Pond, Emil H. Praeger, Patrick Quilty, Victor H. Reichelt, William J. Shea, Raphael J. Smyth, Morris Serating, Jr., William J. Spivak, David Standley, Dr. D. B. Steinman, A. V. Sheridan, George E. Spargo, Edwin H. Thatcher, Arthur W. Tidd, Harold R. Towse, Arthur S. Tuttle, Charles V. Tuttle, Louis A. Walsh, Christian Weaver, Joseph J. Welsh, Harry D. Winsor, George J. Waesterfeld, William H. Yates, Frederick H. Zurmuhlen.

The Arrangement Committee meets every Monday at 5:30 P. M. in Room 6 of the Hewitt Building of Cooper Union, Third Avenue between 6th and 7th Streets, New York City.

How the Hard Jobs in Chapters Develop Personal Efficiency

1. Discipline—accepting and performing a hard job demonstrate stability; the volatile type of enthusiasm won't carry a program chairman or membership chairman for example. A man must be willing to buckle down to systematic, regular, purposeful work to do these jobs acceptably.
2. Contacts—committee work, (program, civic service, and liaison committees) gives the young engineer occasion to interview and serve with leaders of the community, and brings him in a favorable light to the attention of employers of engineers.
3. Information—efficient service requires that a young chapter man read more widely and discriminatingly of publications that carry material, not on the technique of engineering, but on its ramifications, and on public affairs that affect the welfare of engineers.
4. Bearing—the man who is really active in chapter affairs learns to speak easily and naturally on subjects about which he has a genuine conviction. He learns to express forcefully what ever opinion he holds.
5. Prestige—he shares in the prestige which he builds for the chapter. If his chapter is outstanding in civic affairs, and recognized as such, his membership badge brings him a certain distinction.
6. Business training—the financing of chapters is excellent training in practical economics; it tends to overcome a tendency on the part of engineers to disregard cost as a significant factor in any accomplishment.
7. Social asset—the value of chapter friendships, while they should not be primarily a mercenary interest, do actually advance engineering careers.
8. Leadership—Demonstrating qualities of leadership in chapters proves the existence of a quality which employers value highly in men who are to be placed in responsible charge of groups of employees.

Reprint from the "Professional Engineer"

The Professions—Their Significance

Address by Alfred E. Roche, President New York State Society of Professional Engineers, to Monroe County Chapter

The State regulates commerce, transportation, utilities, the use of property, the education of the people, and their health. It protects them against fraud, crime and pestilence. It performs a tremendously complex service. Year after year that service is increased in usefulness and scope. In its service to the people, the State, also, regulates the professions on the basis that it must protect the life, health, and property of the citizens.

Thus all the professions are creatures of the State. Some are larger and more important than others, such as the lawyers with 27,000 licensees. Others are small, but relatively important, such as court reporters with 500 licensees. In the aggregate, the twelve professions recognized by the State constitute 147,000 people. Eleven professions are administered by the Department of Education. The lawyers are under the authority of the Courts.

Men have practiced the professions for centuries, but it was not until recently that the professions acquired a legal status; that is, a status recognized by law, in which specific requirements are exacted of those who would practice. The requirements pertain to citizenship, age, moral character, training, education, experience, and fitness to practice on the public. As a measure of fitness, the State requires that each person who would serve shall demonstrate by tangible evidence his ability to practice the profession. The tangible evidence consists of a series of examinations, to test the person's mentality, knowledge, and familiarity with the implements of the profession. The examinations are a severe test, ranging from 3 to 6 days in time. They climax years of study, and practical application of one's training and apprenticeship days.

The State has a right to know, and it does demand, specific qualifications of those who will become its agents to protect life, health and property.

Medicine was the first profession legalized by the State. That was brought about in 1860. Engineering was the ninth profession, legalized in 1920.

The object of recognizing the professions, whether it be lawyer, doctor, accountant, or dentist, was to protect the public. The public needs to be protected against the quack, the incompetent, the impostor. The investor needs to be protected against unscrupulous reports on engineering work, valuations of property, earning capacity of works, processes, machines, or structures. The client needs to be protected against paying fees to quacks or incompetents who are self-styled professional men. The court needs to be protected against the testimony of so-called experts who pose as professional men. The general public needs to be protected against improper planning, inefficient design, wasteful expenditures, excessive costs, and dishonorable dealings. The State has performed a service of inestimable value in driving the quack out of the professions, in elevating the standards. It now remains with the professional man to clean house from the inside. The State offers help to prosecute the illegal practitioner. You are solicited to help clean your profession.

The professions legalized by the State and the number of persons in these professions are:

Lawyers	27,800	Doctors	21,600
Nurses	41,000	Dentists	9,800
Pharmacists	17,000	Optometrists	2,500
Podiatists	2,800	Veterinary M. D.	900
Engineers	13,000	Accountants	4,800
Architects	4,500	Court Reporters	500

The number in each of the professions is increasing, in general it is at the rate of six per cent per year. Engineering heads the list with an increase of eleven per cent.

This rate of increase should constitute a danger signal to the professional men, and to the universites inducing men to enter the professions. The signal should be an expostion of the cost of education and years of training for a professional career, comparable with the earnings. The average lawyer, doctor, engineer, architect and dentist was preparing for nine years to enter a profession, and start his earning career. He has a capital investment in self on which he must earn a return. His implements are knowledge, experience, integrity. The investment in self at the start of a career is $13,000. The return, in a lifetime, averages $2,800.00 annually.

For many years there has been presented to the youth of the land the romance of engineering in motion pictures, in popular fiction, on the radio, in college advertising. Sand hogs, working below the surface of the river, hoist runners, on building a skyscraper, rock drillers on the construction of a dam, and riveters on a tall building have been depicted as the heroic engineers. Glamour was attached to the work. The youth, and the parent were mislead. There is no glamour in the professions. It is all work. If a man, who has not been admitted to the practice of the profession, calls himself a lawyer, a doctor, or a dentist, each professional man in that group will make it his business to correct the condition and have the offender hauled into police court. The engineers should be just as aggressive, and not tolerate the misuse of their official designation. It is neither creditable to themselves nor to the profession to be silent on this matter. As long as any non-engineer can with impunity call himself an engineer, prefixing any adjective (such as investment, sales, real estate, radio, decorating, or garage) and as long as the press will refer to such as engineers, the uninformed will retain an excuse to under-value the profession. A profession, like an individual, is accepted at its own valuation.

No client should engage the services of any professional man, be he lawyer, doctor, engineer, or dentist, until evidence is established that such person is licensed by the State to perform a professional service. In the Recorder's Office of each County, there is maintained a ledger in which the licensees of the major professions must subscribe their name, the number of their license, and take an implied oath to serve the State in protecting life, health and property of the citizens in return for the privilege to practice a profession.

An examination of the 1930 Federal census permits interesting comparison of professional men, workers and artisans. It, and previous census, discloses professional persons are increasing in number 8500 per year; that artisans are decreasing in number 10,000 per year (artisans—bricklayers, stone masons, carpenters, electricians, plumbers, roofers, moulders, structural iron riggers, steam fitters, hoisters, and small building tradesmen—total 252,800).

Apprentices in the building trades have been wiped out.

That this condition is alarming is reported in a pamphlet published by the State in June 1937, entitled "Apprenticeship and the Need for Apprentice Training." The report states:

"There is a serious shortage at present in all parts of the State of skilled workers in certain trades, as for example, the machinist, tool making, die sinking and foundry trades.—Airplane manufacturers and concerns engaged in the manufacture and installation of air-conditioning apparatus must have more sheet-metal workers.

"The industries of the State are no longer receiving a supply of skilled workers by immigration from the European countries, particularly England, Germany, France, Norway and Sweden. This is due to the quota restrictions which have been placed on immigration.

"Since 1929, few skilled workers have been trained, while in industry the ranks of the skilled have been depleted by death, change in occupation, old age and retirement.

"In recent years, few apprentices have been trained in the building trades and it is reported that the majority of the highly skilled are over 50 years of age. Even if the full complement of apprentices permitted under existing agreements between employes and unions were to be filled, it would be five or six years before new groups of desirable journeymen mechanics would be available and it is doubtful if the number in these new groups would be sufficiently large to take care of the normally needed replacements.

"It is reliably reported that in the leading manufacturing countries of Europe more than 600,000 apprentices are now being trained. In the United States there are fewer than 75,000. New York State has not more than 15,000 apprentices employed in industry. If our Nation is to maintain its industrial supremacy, it must educate, train and maintain in regular and profitable employment a sufficient number of superior mechanics to meet our production needs."

The population of the state is 12,500,000 people. Thus the ratio of the artisans and professional persons to the population is:

Artisans (Building trades)	one in	50 people
Professional persons	one in	85 people
Nurses	one in	300 people
Lawyers	one in	465 people
Doctors	one in	560 people
Engineers	one in	960 people
Dentists	one in	1300 people
Architects	one in	2500 people
Accountants (C.P.A.)	one in	2700 people

The increase in the professional group is approaching the saturation point. In 1945 the ratio will be a professional person per 75 people.

The artisans are decreasing. In 1945 the ratio will be only one artisan per 60 people. This condition will add materially to the cost of works, processes, machines, structures, public undertakings, and private utilities. It will unbalance the fair value of goods produced by artisans, compared to their true worth before their placement in structures.

The State of New York and the Federal Government recognize this condition. To overcome it, they will contribute to the cost of conducting vocational schools to train students in machine work, carpentry, masonry and the building trades.

The statisticians of the country forecast a building surge in 1940. Babson says:

> "For the country, the 1939 construction bill, authorities say, will run close to 9 billion. The impact of this huge outlay will be felt by many lines of business. Companies producing materials and equipment should experience a healthy earning increase with consequent enhancement in the value of their stock."

A continuation of the increase in number of professional men with the decrease in the number of artisans cannot support a continuity of building activity. A decrease in the number of artisans produces a demand for workers and wages which result frequently in strikes. An abundance of skilled workers, not professional people, should constitute the construction force of the State.

Recently, the Chief of Staff, U. S. Army, stated to a group guiding vocational work that they should train 10,000 ground mechanics annually for the next 10 years to care for airplane industry of the country. It is a significant fact that he found sufficient lawyers, doctors, engineers, architects, and other professional men and a shortage of artisans, mechanics and apprentices.

The practitioner engineer is now following the lead of the legal and medical professions by requiring new high standards for those who would be admitted to its ranks. It recommends a six-year course of study in college to prepare for the profession. The subject matter of engineering cannot be imparted to a student in shorter time. The four-year course standard 30 years ago has not embraced the requirements of the times. The advance in science has been more rapid than our ability to absorb it in a four-year college course. The practitioner believes the educational group should conform to new standards; the rollicking days of all professions are gone. Culture, business training, good will, obsolescence, relative values, public relations, economics and integrity will add materially to the service professions can render to the State and Society. Yet they are not subject matter in the curricula of our universities. They are pertinent matters to every professional man.

The practitioner has found from years of contact and experience where service is traded for dollars that a firm background of scientific knowledge is enhanced by a study of cultural subjects presented during the years of study of engineering subjects.

The State is zealous in its desire to curb the illegal practice of all professions. It employs investigators to ferret evidence of illegal practice. Its staff has been increased for such a purpose. The professions seek the aid of the press in their desire to clean out quackery and imposters. The appeal is made to our profession to lead in this respect.

The Engineer in Ireland

(The Engineers' Association)

1/3 Westmoreland Street, Dublin, March 1, 1939

TO THE ENGINEERS OF IRELAND:

This is the ninth circular issued by Cumann Na nInnealtoiri to the engineers of Ireland over the past two years.

Events of great importance have taken place during that period. Events and policies at home and abroad have emphasized the need, continually voiced by the Cumann, that the engineering profession should consolidate itself without delay, in view of the responsible part which it must play in the country's affairs now and in the future.

In peace or war the time is long past when the obligations of the engineer went no further than the successful completion of his particular job; when the voluntary contribution of the members to the profession and of the profession to society was left to a few public spirited individuals.

(Continued on page 8)

A Challenge to an Organized Profession

Trade School or Professional Education for Engineers?

By D. B. STEINMAN.

We are committed to a program of enchancing the professional status of the Engineer and, to this end, we believe that the engineering profession should be second to none in cultural and technical preparation and equipment. (—N.S.P.E. Resolution, Annual Convention, Pittsburgh, October 19, 1938)

In a profession, the highest interests of public welfare and safety are not best served by men whose schooling has been confined to the technical without the development of social perspective, character, and intellectual breadth through an adequate foundation of liberal and cultural education. (—N.S.P.E. Resolution, Annual Convention, Pittsburgh, October 19, 1938.)

Surely there can be little question of the necessity for a thorough general academic training for any professional man. This should be *followed* by a general professional course which would train him to qualify for entrance to the *general* practice of his calling. (—Arthur V. Sheridan, Editorial in AMERICAN ENGINEER, July 1936.)

That a pre-professional course of two years should be required of prospective engineering students is a subject that is much in the thoughts of Engineers who are closely allied to public affairs. The Engineer can no longer remain a silent cog in the machinery of a society which cannot exist and advance without him. He must be articulate and capable of contending on an equal basis with the representatives of business and the other professions in helping to direct community progress and the affairs of government. Two years spent in an intensive study of general mathematics, history, literature, philosophy and at least one foreign language is none too much for the average man to prepare himself for professional matriculation. With such foundation, three years of general engineering study should, when amplified by an apprenticeship of three to four years, prepare one sufficiently to enable him to seek, through examination, admission to the profession. (—Arthur V. Sheridan, Editorial in AMERICAN ENGINEER, July 1936.)

The content of engineering knowledge now available and required for practice in any one branch of the profession has grown enormously since a generation, or a century ago. It has become too much to pack into a crowded four-year course, particularly if the curriculum has to make up for deficiencies of high school preparation besides covering any cultural, economics, or English courses. Two years of pre-engineering college work as a prerequisite would solve the problem, relieving the professional course proper of its deficiencies and its overcrowding and permitting faster progress and higher standards to be attained. This suggestion is suppressed as heresy by the engineering educators. Practically all medical schools and the leading law schools have been established on a graduate level, but engineering schools cling to the lower status. (—D. B. Steinman—in the fourth of a series of articles on "What is Wrong with the Engineering Profession"—AMERICAN ENGINEER, July 1936.)

No other profession, such as law, medicine, teaching, or the ministry, dreams of giving so narrow a preparation for life. Are we justified in giving it to engineers? (—Philip C. Nash, President, University of Toledo, *S.P.E.E. Journal,* 1938.)

Therefore Be It Resolved, by the National Society of Professional Engineers in Convention assembled at Pittsburgh, Pa., on October 19, 1938—That the National Society favors and advocates the raising of the standard of engineering education to a higher level by requiring at least two years of pre-engineering college training as a pre-requisite for admission to the engineering schools; and

Be It Further Resolved—That the National Society of Professional Engineers shall do what it can to encourage and speed the attainment of this objective, through persuasion, education, and legislation. (—Resolution unanimously adopted by N.S.P.E.—Annual Convention—October 19, 1938.)

"I do hope that all professional agencies will pull together for the accomplishment of this objective in the improvement of engineering education, which is obviously an essential immediate step to the preservation of the profession." (—Carlton S. Proctor, Director Am. Soc. C. E., January 1939.)

In a society of increasing complexity, the United States is the only highly developed nation that still compresses secondary education into a four-year term. Either our high-schols must do a much more efficient job than they have been doing, or the course of study must be lengthened by one or two years. * * * *Engineers must realize that they live as members of society, not simply as professional technicians. They need more cultural studies.* Medicine and Law recognize this by requiring two years of pre-professional collegiate training. (—Dr. George F. Zook, President of the American Council on Education—in address at annual assembly of American Engineering Council, December 1938.)

Practically all who have studied the subject are agreed that there are now three things basically wrong with engineering education. These are: (1) insufficient preparation of entering students for full benefit of an intensive professional education; (2) a too crowded curriculum for four years of study; (3) inclusion of insufficient cultural foundation for the proper equipment of a professional man. All of these three shortcomings can be relieved by a single solution, namely, the encouragement and the ultimate requirement of two years of pre-professional study in a college of liberal arts and sciences before admission to the engineering schools. (—D. B. Steinman—"To All Interested Engineers"—January 1939—AMERICAN ENGINEER, February 1939.)

In 1905, the medical profession embarked on a program of raising the level of medical education. They considered this so important, to the public and to the profession, that the American Medical Association has expended over one million dollars on this one objective since 1905. (—Dr. C. G. Heyd, in address on the Medical Profession, at Annual Meeting of A.S.C.E., January 18, 1939.)

Every medical school in the country now requires 2 to 4 years of college work before entering the medical school, and 43 States have written this requirement into the licensing law. In 1916, 16 States found it necessary to enact such legislation in order to bring the remaining medical schools into line with the higher educational standards set up by the medical profession. Now 77 percent of all medical students are *college graduates* before they *enter* medical school. The leading law schools re-

quire applicants to have a college *degree* before enrollment, and 29 States by law require two years of pre-legal *college* study. (—D. B. Steinman—in AMERICAN ENGINEER, 1938-1939.)

All three of these talks (by representatives of Medicine, Law, and Architecture) may be summed up to the basic fact that a stern self discipline of their professions and professional educational standards has been exercised. All three of these professions realized years ago that a profesional man cannot be produced in four years of educational training and that low educational standards inevitably resulted in turning out graduates in annual numbers far beyond society's and industry's ability to make places for them. All three require an undergraduate college training as a prerequisite to a professional education; in fact post-graduate study is today pretty well accepted as one basic standard of a professional man. (—Carlton S. Proctor—at the Annual Meeting of A.S.C.E., January 18, 1939.)

With demands upon the Engineer increasing daily and his needs for equipment to cope with leaders in all walks of life becoming daily more exacting, he is asked to assimilate a steadily increasing technical curriculum at the sacrifice of training in the humanities and cultural subjects. No wonder that the editor of "Engineering" complains that the Engineer lacks status. With the training for Architect, Lawyer and Doctor requiring a basic undergraduate academic course in the humanities followed by a post-graduate professional training; with the standards of education rapidly increasing for men in all walks of life; and with scientific and technological advancement and opportunities setting an unprecedented pace, are not the engineers obtaining but a glorified trade school training instead of a real professional education; are not the young Engineering graduates cursed with an inferiority complex when they come into contact with the more thoroughly educated of other professions; and are they not confused in their minds as to whether they are in a profession or a trade? * * * Isn't it time that we agree that a professional man cannot be produced in four years, but that an accredited civil engineering training must be definitely post-graduate to a broad undergraduate training as a prerequisite? (—Carlton S. Proctor, at the Annual Meeting of A.S.C.E., January 18, 1939.)

Four national engineering societies, including the Am. Soc. C. E., are ready to ask E.C.P.D. to take the step of establishing one or two years of pre-engineering college training as a prerequisite for admission to the engineering schools. (—Walter E. Jessup, Field Secretary A.S.C.E., at conference of State Boards of Engineering Examiners, January 19, 1939.)

As an immediately practical step, the N. Y. State Society of Professional Engineers is sponsoring a bill to recognize pre-engineering college education by making it permissive for the State Board to give fractional credit for such education. (—Conference of Officers and Directors, N. Y. State Soc. of P.E., January 14, 1939.)

Representatives of various State Boards of Engineering Examiners and other interested engineers and educators have approved the proposed N. Y. State amendment, agreeing that it is the right initial step to take. (—Conference called by Dr. C. F. Scott, President National Council of State Boards of Engineering Examiners and Past President E.C.P.D., at New York, January 19, 1939.)

"I am thoroughly in accord with the proposed amendment. Unquestionably the trend today in engineering education is to require at least one, and usually two, years of study in a college of liberal arts and sciences, preparatory to engaging in actual engineering study." (—Professor R. R. Zipprodt, Dept. of Civil Engineering, Columbia University, February, 1939.)

Conclusion

Shall the normal engineering education continue as a glorified trade school training or shall it be raised to a professional level?

With the standards of education rapidly increasing for men in all walks of life, shall engineering education remain at the level of fifty years ago?

Shall the objections of schools chiefly concerned with their competition for enrollment outweigh the determination of the profession to raise the standards?

Is there any valid reason why Engineers should require less education or a narrower education than Physicians and Lawyers?

Is not the establishment of higher standards of professional education a proper concern for the profession as a whole?

Is it not time to put resolutions, editorials, addresses, and convictions into action? To stop talking about the problem and to do something about it?

Let us show what an organized profession can do.

Let us follow through!

The Engineer in Ireland

(Continued from page 6)

Today every engineer has responsibilities which are probably greater than those of the average citizen in helping to build up the material wealth of the nation under a balanced economy in preparations for the country's defence, and in all those social services in which his knowledge and experience give him prior place.

Acting alone the engineer can do little, his voice cannot be heard even if his motives are worthy and his ideas sound. He must join with his fellow engineers to form a solid unit within the framework of the State, and make the affairs of the State his special concern in so far as his knowledge and experience might be of service.

In recent years with the growth of government controlled undertakings the engineer is gradually finding himself locked in a state bureaucracy, and subject to administrators whose training is not necessarily on the lines suitable for directing or appreciating his work.

Every year a bigger percentage of engineers is finding employment in the public services where his claim to reasonable status and conditions of employment has not met with success, because it has lacked the support of a unified profession.

Professional consciousness and unity must be kept alive if these engineers are to assume their proper place in the Public Service. Too often, today, many engineers in the Public Service are hired in a temporary capacity for indefinite periods, without of course any prospects or chance of security and pension, or an alternative compensation. Apart from the narrower, but nevertheless essential aspect of reward, which cannot be overlooked if the ability attracted to the profession is to be maintained, there is the broader issue of the engineering profession taking its vital and rightful place in the state. This is not possible without the unity which is essential if the profession is to become recognizable as one body.

The Cumann is doing the work of uniting the various specialties of the profession. Its progress at the moment is more promising than ever before.

This circular is issued to make the progress still greater by inviting every engineer to whom it is addressed to become a member—every engineer, regardless of his age, occupation, position or specialty.

for the COUNCIL
J. G. CHARLTON
Secretary

ENGINEERING REGISTRATION

An Aid to the Professional, Economic and Social Status of the Engineer

By H. M. Jones, Secretary, California State Board of Registration for Civil Engineers

It appears as an axiom, that the profesional, economic and social status of the engineer is so fundamentally dependent upon public opinion that none of these positions can be advanced without the public's justified conviction that these advancements are merited. Relatively, the engineer is long on technical ability and short on public recognition. He has kept abreast of scientific advancement but has lagged far behind in competition with other professions and vocations in bidding for favorable recognition. A passive position has and will produce no change in status but a properly designed aggressive program will at least put the engineer on an even basis with others in bargaining for public favor.

The general public's appraisal of the required technical training, qualifying experience and acumen of the engineer fixes his professional status; his commercial value to society, his economic position; and his demeanor and personal habits, his place in the social scale. To secure the appraisal which is desired will require the focusing of public attention on the professional engineer, as such, by a proper public relations program.

Generally, the professional engineer has given little concern to those calling themselves engineers, or to those who practice engineering or how such practice is conducted, with a result that the group commonly known as the engineering profession is actually comprised of a most heterogeneous personnel. Many have found it expedient to call themselves engineers when their training and experience, or even their activities have no relation to engineering. Persons engaged in subprofessional occupations, as surveyors and draftsmen, have almost without an exception, been known as engineers. The engineering efforts of many in this miscellaneous group have been marked with gross incompetency, negligence, deceit and fraud. Thus, the professional engineer, comprising a probable minority of this broad and general classification has been subject to mass appraisal without the appraisers knowledge of what actually constitutes professional engineering.

Therefore, advancement of the professional, economic and social status of the engineer awaits the time when he alone can pass in public review without the impediment of satellites. Conceivably this would be when:

(1) Technical standards for those who practice have been established and are maintained;
(2) The professional is separated from the subprofessional and the usurpers of the professional prerogative;
(3) Aggressive control of improper practice and conduct is an actuality;
(4) There is a positive prohibition against any but qualified persons from practicing or offering to practice.

State regulation of the practice of engineering, commonly called engineering registration, seems at the moment, one of the primary and desirable agencies through which to accomplish this end. Obviously no law is better than its administration, but in their abstract form the registration laws of the several states are capable of:

(a) Technically qualifying applicants;
(b) Restricting the use of the title "engineer";
(c) Applying disciplinary action for malpractice;
(d) Prosecuting, criminally, those who practice, or offer to practice without the proper authority.

Experience with engineering registration has served to illustrate its potentialities. For example,

Practical qualifying examinations, not of the collegiate type but rather a developed series of selected practical problems, suitable for solution, have been given. The examinee is called upon to recognize the theory involved and to proceed with the solution, using the proper principle with good engineering judgment under conditions which approach those encountered in actual practice, save access to advice from others.

Persons using such titles as appraisal engineer, structural engineer, and sanitary engineer when each has been, respectively, a real estate salesman, a building contractor and a plumber, have been definitely stopped from so styling themselves.

Cases of complete revocation of registration, suspensions and reprovals serve as evidence that positive disciplinary action is an effective remedy for improper practice and conduct.

Prosecuting officers have been willing to issue warrants for arrest, prepare and try cases against those accused of practicing without authorization or using the title engineer illegally, upon the presentation of proper and sufficient evidence. Judges and juries alike have not failed to render verdicts within the meaning of the law and consistent with the evidence submitted.

No claim is made that registration of today is contributing more than an appreciable help toward public recognition. Compared with statutory regulation of several other professions it is relatively new and perhaps for this reason is lacking in comparative accomplishments. It is believed, however, that it has provided some foundation upon which future professional welfare procedure can be based and has established itself as a proper agency for the continuance of this work.

The effectiveness of registration as an instrument for the promotion of engineering welfare is dependent upon the completeness of its acceptance and use by the profession. This seems true both as to the summation of accomplishments and the time necessary for their fulfillment. From observation it seems quite probable that an extended and modified type of the so-called Model Law would be productive of more satisfying results. These changes would manifest themselves with increased interest in and development of registration by the Society. Generally, they could very properly include, vesting the administrating authority in a public corporation controlled by the profession, providing greater latitude and more flexibility in the control of professional practice, and using the public corporation as an agency to transact the business of the profession not possible or desirable by the Society, either directly or through local sections.

In recapitulation, professional engineering welfare revolves around the focal point of public opinion and engineering registration offers perhaps the most practical approach in organizing and preparing the profession for a new and more favorable public evaluation.

Examinations For Professional Engineer Licensure

Editor's Note: These copies of examinations will be of especial interest to other states where written examination for licensure is being advocated.

THE UNIVERSITY OF THE STATE OF NEW YORK
EXAMININATION FOR PROFESSIONAL ENGINEERS
PROFESSIONAL ENGINEERING—PART I

Answer any eight of the following questions but no more. If more than eight questions are answered, only the first eight will be considered. Slide rule and any reference books may be used. Return these questions with your answer papers.

1 A three-axle truck-and-trailer combination is crossing a 100-foot span. If the axle loads are 5, 10 and 20 tons respectively and the axle spacings are 10 and 20 feet, how far is the first axle from the end of the span when this load produces the maximum live-load bending moment?

2 What size steel beam is required to carry a load of 10 tons at the center of a 20-foot span without lateral support? Use the following formula for unit stress in the compression flange:

$$\frac{20000}{1 + \frac{l^2}{2000b^2}}$$

where l is unsupported length in inches and b is width of flange.

3 Name (*a*) *three* ways in which a steel beam may fail, (*b*) *three* ways in whch a reinforced-concrete beam may fail.

4 A wood-stave pipe 36 inches in diameter is bound with ½-inch steel hoops spaced three inches center to center. To what internal pressure may this pipe be subjected at 16,000 pounds per square inch tension in the gross section of the hoops?

5 Sketch a plan for the second floor of a one-family house. Provide a master bedroom with private bathroom, two additional bedrooms, a hall bathroom, stairs, closets, doors, windows and radiators.

6 What are the comparative characteristics of lime, cement and lime-cement mortars?

7 A tape is ¼ inch wide and 1/32 inch thick. What increase in tension is required to offset the shrinkage due to a drop in temperature of 20°?

8 A plate girder having a simple span of 80 feet carries a total uniform load of 5000 pounds per linear foot. Design a section to take the maximum bending moment.

9 Design and sketch the section of a short circular reinforced-concrete column to carry a total central load of 400,000 pounds.

10 Describe the tremie method of placing concrete under water.

11 Design a reinforced-concrete beam ($f_s = 18{,}000$, $f_c = 800$, $n = 12$) to replace a 12″ x 16″ wood beam with a unit stress of 1400 pounds per square inch.

12 Two plates, each 9 inches by ⅜ inch, are to be spliced by a lap joint with ⅞-inch rivets. Design and sketch a joint for maximum efficiency, using the following stresses: tension = 18,000, shear = 13,500, bearing = 27,000 pounds per square inch.

PART II

Answer any eight of the following questions but no more. If more than eight questions are answered, only the first eight will be considered. Slide rule and any reference books may be used. Return these questions with your answer papers.

Hydraulics

1 A rectangular sluice gate is 4 feet wide by 6 feet high. It is immersed vertically in water with the 4-foot edges horizontal. Water stands on one side of this gate at a depth level with its upper edge, and on the other side at a depth of 3 feet below its upper edge. The gate is hinged at the top and is held in equilibrium by a horizontal force applied at its lower edge. Calculate this force.

2 A fireman's nozzle of easy taper and with no contraction of the issuing jet has a diameter of 1¼ inches at the tip and a coefficient of velocity of 0.97. A fire engine pumps water at the rate of 250 gallons per minute through the hose and nozzle from a reservoir whose water surface is 20 feet below the elevation of the nozzle. If the total loss of head in the 150 feet of 2½-inch rubber-lined hose through which the water is pumped is 50 feet, determine how many horsepower must be produced by the fire engine.

3 A test was conducted on a centrifugal pump having a suction pipe 10 inches in diameter and a discharge pipe 5 inches in diameter for a measured discharge of 817 gallons per minute. The pressure in the suction pipe was 4.5 inches mercury vacuum, and the pressure in the discharge pipe was 15.5 pounds per square inch at a point 3 feet above the point where the pressure was measured in the suction pipe. If 15 horsepower were delivered to the pump by an electric motor during the test, calculate the efficiency of the pump.

4 A rectangular flume is to be built of planed timber to carry a discharge of 98 cubic feet per second of water at a mean velocity of 4 feet per second. Determine the dimensions of this flume so that a minimum amount of timber will be required, and calculate the slope required for this flume in feet per mile. Kutter's N for planed timber may be taken as 0.012.

Thermodynamics

5 Air is compressed in a Diesel engine from an initial pressure of 13 pounds per square inch absolute and a temperature of 150° F. to 1/14 of its initial volume. Calculate the final temperature and pressure, the value of the exponent of volume being 1.35.

6 *a* Describe the Otto and the Diesel engine cycles, including timing diagrams of the events of the cycles.

b What factors limit the compression ratios which may be used in engines operating on these cycles?

7 A gas-fired steam boiler delivers 250 pounds of steam per hour of 0.98 quality. Calculate the boiler horsepower and the boiler efficiency under the following conditions: feed-water temperature 60° F., steam pressure 25 pounds per square inch gauge, barometric pressure 30.2 inches Hg. gas pressure 4 inches of water, gas temperature 80° F., gas consumption 800 cubic feet per hour, heating value of the gas 540 Btu per cubic foot at 60° F. and 30 inches Hg.

8 A turbine exhausts 120,000 pounds of steam per hour of 0.96 quality into a condenser at 1.5 inches Hg pressure. Calculate the water rate in gallons per minute necessary for condensation, the water entering at 60° F. and leaving at 75° F.

Machine Design

9 *a* Sketch *three* types of mechanisms producing slow advance and quick return motion.

b With respect to the motion of a follower actuated by a cam, what is meant by harmonic motion, and by uniformly accelerated and retarded motion?

10 A Diesel engine has a piston 14 inches in diameter, a stroke of 22 inches and a connecting rod 55 inches long. Calculate (*a*) the tangential effort on the crankpin at a crank angle of 30° on the power stroke when the cylinder pressure is 400 pounds per square inch, (*b*) the side thrust against the cylinder walls, (*c*) suitable crankpin dimensions for proper lubrication.

11 *a* The rear wheels of an automobile, on account of different road conditions on the two sides of the car, will slip at different tractive efforts, one at 400 pounds and the other at 800 pounds. What is the propulsive effort on the car?

b With spur gearing having twisted teeth, what is the form of the line of contact along the tooth surface?

c What is the form of the pitch surface in (1) spur gears, (2) bevel gears, (3) hypoid gears? What conditions favor the use of each type?

12 Calculate the energy in the rim of a cast-iron flywheel 24 inches in diameter, having a rim 5 inches wide by 4 inches deep, when running at 1000 rpm.

Electrical Equipment

13 State the purpose, position, number, construction and connection of interpole and series field windings in direct-current machines. Explain what compounding action results from the use of *each* of these types of windings and give reasons for your answer.

14 Two similar 3-phase transformers are to be connected in parallel to supply a common load. The primary voltage is 1200 and the ratio of transformation of the transformers is 10 to 1.

a State how the primary and secondary windings of these transformers should be connected in order that energy for lighting and power may be taken from the low-voltage side.

b Describe briefly the protective and metering devices needed.

c Outline the procedure in actually making the connections recommended in *a*.

15 A certain 50-hp., 550-volt d-c shunt motor has an armature resistance of 0.35 ohm and a field resistance of 320 ohms. The rated current is 76 amperes. It is desired that the starting torque be 150% of the rated torque. Assuming that the armature reaction is such that the ratio of the no-load to the full-load field flux is 1.11, estimate the resistance of an appropriate starter for this motor.

16 A certain industrial process requires 60 gallons of water per minute at a temperature of 90° F. (One gallon of water weighs 8.33 pounds.) The available water is at 50° F. and must be raised 120 feet. As a 110-volt power supply is available, it is decided to use a motor-driven, direct-connected pump with an electrical heating coil inserted in the discharge pipe of the pump.

For this load, the pump efficiency is 67% and the motor efficiency is 80%. The power company's rate for electrical energy is 2 cents per kilowatt-hour. Neglecting friction and heat losses in pipes and wiring, determine the following:

a Power required to pump the water
b Power required to heat the water
c Total cost of electrical energy per gallon of water

PART III

Answer three questions, but no more, from group A, and five questions, but no more, from any one or two of the groups B, C, D, E. Do not select questions from more than two of groups B, C, D, E. If more than eight questions are answered, only the first eight, selected as indicated above, will be considered. Slide rule and any reference books may be used. Return these questions with your answer papers.

GROUP A

Engineering Economics and Practice

1 A contractor and an owner get into a dispute over the settlement of a contract and they agree in writing to call in a professional engineer to decide their dispute, and they also agree in writing to abide by the engineer's decision, no matter what it may be. After the engineer has rendered his decision, the owner refuses to abide by it. Discuss the legality of this agreement, the rights of the two parties and the legal position of the professional engineer.

2 A new highway is contemplated between two cities. It is estimated that four traffic lanes will be ample to serve traffic requirements for the next 10 years. After that, six lanes will be required. The estimated cost of the four-lane highway is $1,200,000; of the six-lane highway, $1,600,000. The former is divided among right of way. pavement and all other items in the ratio 1 : 4 : 5; the latter, in the ratio 1 : 4½ : 4½.

The interest rate is 4%.

a How much money, in addition to the cost of the four-lane highway, can be spent economically?
b Distribute this additional amount among the three general subdivisions mentioned above, in the order in which it should be expended.

3 Assume that a supply of blast-furnace gas is available for power production and that you must determine whether it is better to install a boiler plant with steam prime movers and burn the gas in the boiler furnace or to install gas engines. Enumerate and discuss the important items that should be considered in arriving at a decision of the type of equipment to use.

4 The cost of a certain type of bridge superstructure in dollars is equal to the square of the total length in feet. At a certain location where a valley 1000 feet across must be bridged, end abutments for this type of bridge cost $200 + 30x$ dollars each, where x = length of one span in feet, and intermediate piers cost $400 + 50x$ dollars each. Into how many spans of equal length should the 1000 feet be divided in order to give the cheapest bridge and what will be the total cost of the structure?

5 An old plant, manufacturing a certain article, can not expand on account of lack of available land at its present site. What data should be collected and what phases of the problem should be investigated and studied to make a complete report on the advisability of buying a new site and building a new plant?

GROUP B

Chemical Engineering

6 A tubular heat exchanger is to be designed to heat 1000 gallons of 70 proof alcohol per hour from 70° F. to 200° F. The specific gravity of the alcohol is 0.945 and its average specific heat is 0.895. Brass tubes 0.8" O.D. x 0.6" I. D., six feet long are to be used for the exchange surface, with alcohol inside the tubes, and saturated steam under a pressure of 5 pounds gauge outside. Preliminary tests have shown that the steam film coefficient may be expected to be 2000, and the alcohol film 75 Btu per square foot per degree Fahrenheit per hour. The thermal conductance of brass of the composition to be used is 63 Btu per hour per degree Fahrenheit per square foot over one foot path. How many 6-foot tubes will be required for the heater?

7 A multiple-effect evaporator is to be installed in an alkali-chlorine plant for the concentration of 2500 pounds of cell liquor per hour. The cell liquor has a specific gravity of 1.15 and contains 170 grams of NaCl and 41.5 grams of NaOH per liter. The finished caustic is to have a specific gravity of 1.53 and will contain 765 grams of NaOH and 60 grams of NaCl per liter. Facilities are already available at the plant for the production of not to exceed 1000 pounds of steam per hour at 50 pounds gauge pressure. It is impracticable to install additional boiler capacity at this time.

State and explain the theoretical, economic and practical considerations that must be taken into account in order to determine (*a*) the number of effects for the evaporator, (*b*) the materials of construction, (*c*) the type of heating surfaces, (*d*) the areas of the heating surfaces, (*e*) whether forward or backward flow is to be used, (*f*) the types of auxiliary equipment required.

8 Calculate the molecular heat of combustion of acetylene from the following data:

$2H_2 + O_2 = 2H_2O + 2(68{,}387)$ cal.
$2C + O_2 = 2CO + 2(26{,}428)$ cal.
$C + O_2 = CO_2 + 94{,}385$ cal.
$2Ca + O_2 = 2CaO + 2(151{,}710)$ cal.
$Ca, O_2, H_2 = Ca(OH)_2 + 236{,}100$ cal.
$Ca, 2C = CaC_2 + 14{,}600$ cal.
$2C, H_2 = C_2H_2 - 54337$ cal.

9 A furnace is fired with a coal analyzing 68% carbon, 6% free moisture and 8% ash, burned under such conditions that elimination of combustible matter from the refuse is complete. The air enters the furnace at 20° C. and 60% saturated with water vapor, the vapor pressure of water at this temperature being 17.4 mm. The flue gases go to the stack at 600° F. The barometer is 750 mm. If the flue gas has an Orsat analysis of 9% CO_2, 2% CO, 7% O_2, and the rest N_2, calculate (*a*) the per cent of net hydrogen in the coal, (*b*) the ultimate analysis of the coal, (*c*) the per cent of excess air, (*d*) cubic feet of flue gas formed per pound of coal fired, (*e*) cubic feet of air used per pound of coal fired.

10 It is required to evaporate 1000 pounds of water per hour in an adiabatic drying operation carried out in such a way that the air leaves the drier saturated at 100° F. The air is first preheated by means of steam coils from 70° F. and 70% humidity to the proper temperature. Calculate (*a*) pounds of bone-dry air required per hour (*b*) volume of the air before preheating, (*c*) Btu required per hour in the preheater.

11 A 5% ammonia solution was distilled under simple distillation conditions until half its original weight was in the distillate, which was found on analysis to contain 9.84% NH_3. If a 3% ammonia solution were to be distilled until ¼ of its weight was in the distillate, what would be the composition of the residue and of the distillate? Assume that dilute solutions of ammonia in water follow Henry's law.

12 A direct-driven blower is to be used to force 400,000 cubic feet of coal gas (density 0.0425 pound per cubic foot) per hour through a purifying tower, across which the drop in pressure will be 25" of water. If the over-al efficiency of the motor and blower is 16%, estimate the power required by the motor.

13 Draw a flow sheet for a beet-sugar mill, employing the Steffens processes for recovering sugar from the molasses.

GROUP C

Civil Engineering

14 A reinforced-concrete structure to support static loads is to be constructed of a concrete having a compressive strength of 3000 pounds per square inch in 28 days. State what allowable stresses you would recommend for the following:

a Extreme fiber stress in compression
b Shear in footings where longitudinal bars have no special anchorage
c Bond in beams and slabs and one-way footings with plain bars or structural shapes
d Bearing on full area
e Axial compression in columns with lateral ties

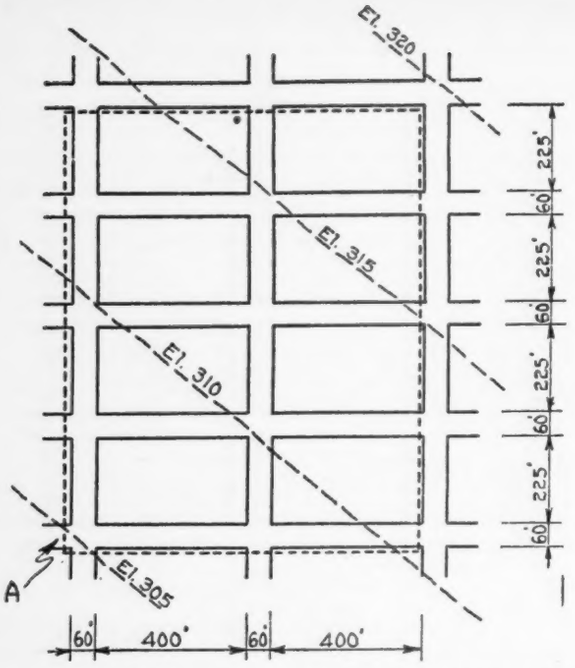
15 A survey for a pipe line calls for a traverse which does not return to the starting point. Discuss briefly *three* methods of checking the angles of the traverse.

16 From the following data show the computation to determine which one of the four pipes would be the economic size to use for a penstock of a proposed hydroelectric station. Assume that the decrease in energy output of the plant is 218,000 kwhr for each additional foot loss of head in the pipe, that energy is valued at 2 mils per kwhr, that interest on investment is 6% and that annual operating charges, including taxes, maintenance and depreciation, amount to 4% of the capital investment.

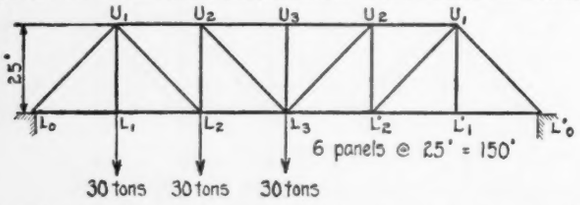
Diameter of pipe — Estimated cost per feet	foot	Loss of head per 1000 feet
8	$27.50	4 15′
9	31.00	2.22′
10	34.45	1 26′
11	37.85	0.76′

17 Vertical beams supported at each end and spaced 8 feet on centers act as guides for trash racks or screens and are designed to withstand the water pressure imposed on them when the racks are clogged. The length of each beam is 15 feet, the depth of submergence is 12 feet. Calculate the maximum moment in one of the beams, assuming that the entire rack section is blocked with ice and debris resulting in the complete unwatering of the intake downstream from the racks.

18 A rectangular plot of ground, as shown below, is to be provided with a storm sewer, which is to be connected to the existing city storm-sewer system at point A. Sketch a plan of a proposed layout for the portion inside the dotted lines, showing inlets, manholes, laterals and main sewer line. State the procedure for determining the size of laterals and main line.



19 Determine the stresses in members L_0L_1, U_1L_2, U_2L_2 and U_2U_3 of the Pratt truss shown below when loaded as indicated.



20 Write a brief engineering specification for the concrete to be used in the construction of a reinforced-concrete floor slab of a bridge to be built on a four-lane highway in New York State, covering the following items: (*a*) concrete mix, (*b*) Portland cement, (*c*) fine aggregate, (*d*) coarse aggregate.

21 Assume that you are asked to design a reinforced-concrete footing consisting of a pier 18″ square and a reinforced-concrete mat to sustain a load of 104,000 pounds (including the weight of the footing), using a working soil pressure of 3500 pounds per square foot. Determine the size of the slab and the depth required for punching shear.

GROUP D

Electrical Engineering

22 *a* What is the justification for assuming a sinusoidal time variation of the alternating quantities met with in electrical engineering?

b Write the equation for the instantaneous value of a sinusoidal current having an R.M.S. value of 0.01 ampere and a frequency of 10^5 cycles per second, if time is measured from a point of maximum positive value.

c Sketch the power wave resulting from the passage of this current through a pure inductance of 100 microhenrys and explain the physical significance of the wave form. Give the value of the maximum instantaneous power supplied to this inductance.

23 Two 2400/240-volt transformers are to be operated in parallel to supply a 100-kw load at 80% lagging power factor. With the secondary winding short-circuited, an emf of 110 volts impressed upon the high-voltage side of transformer A supplies 600 watts and produces a secondary current of 225 amperes. A similar test on transformer B yields the same secondary current with 90 volts on the high-voltage side, but the input is 1200 watts. Calculate, as accurately as the data permits, the distribution of the total current between transformers A and B.

24 A 2-mfd condenser is connected across a source of potential, the fundamental sinusoidal component of which has a peak value of 1000 volts and a frequency of 60cps. The potential has also third and fifth harmonic components which are respectively 35% and 20% of the fundamental. Calculate the R.M.S. value of the current drawn by the condenser.

25 It is desired to use a dynamometer-type wattmeter, such as is used generally at power frequencies, to measure power at 2000 cycles per second. State whether the indications of such a meter so employed may be expected to be correct, or not. Explain the reasons for your answer.

26 Outline how you would test a 100-hp., 3-phase, 10-pole, 208-volt, 60-cps. induction motor for its performance characteristics. Assume that the motor output can not be measured directly. List the characteristics you would determine and tell how the test data would be employed to yield these characteristics.

27 Answer *two* parts of this question:

a Explain how you would reverse the polarity of a shunt-excited generator. Give the reasons for your answer.

b Explain the difference between self-inductance and leakage inductance as applied to a transformer.

c State how one-phase power may be converted to three-phase power by means of an induction phase converter and explain its operation and application.

28 Give the circuit for an audio amplifier suitable for a modern small radio set having a maximum output of about 5 watts. This amplifier should have a frequency characteristics which is flat over a sufficiently broad range. State this range, list the approximate values of the circuit constants, list all potentials and tubes and indicate the value of the input voltage necessary for full output.

29 Describe an engineering project or problem given to you for supervision or solution. Only such assignments as involved your own responsibility should be described. Give the solution of the assignment, together with its location, the date of its performance, the name of the firm handling the business and your office title. *Do not include your name.*

GROUP E

Mechanical Engineering

30 A 5000-kw turbine generator takes steam at the throttle at 400 pounds gauge and 600° F. total temperature; it exhausts at 10 pounds gauge and has a steam rate of 20 pounds per kwhr. Generator losses are 5%. Find (*a*) the over-all Rankine efficiency, (*b*) exhaust steam quality or superheat.

31 Find the motor size needed to provide the forced draft service to a boiler that burns coal at the rate of 10 tons per hour. Coal analyzes 5% H_2, 75% C, and the remainder being ash. Coal is burned with 25% excess air; air is provided under 6″ water pressure by the fan; fan has 60% mechanical efficiency.

32 An amount of water sufficient to absorb 323,000 Btu per hour must be pumped through a standard 6″ pipe to an air-conditioning spray chamber requiring a pressure of 60 pounds per square inch gauge at the nozzles. Assume that all of the air in the room is recirculated, that the total pipe friction is equal to 2 pounds per square inch gauge and that the temperature of water supply is 38° F. and discharge temperature is 44° F. What size of motor is required on a single-inlet, single-suction centrifugal pump which is directly connected to an electric motor? The pump efficiency is 60% and the motor efficiency is 75%.

33 *a* Assume values for required data and calculate bore and stroke for a 125-hp, 5-cylinder radial aircraft engine.

b Describe briefly *three* different fuel-injection methods employed on Diesel engines.

34 *a* Discuss briefly the factors you would consider in determining the "economic lot" of a part that is being manufactured on an automatic screw machine.

b With reference to automatic temperature-control equipment, what is meant by the following terms: (1) transfer lag, (2) velocity-distance lag, (3) demand-side storage lag?

35 Describe briefly what is meant by the following terms pertaining to automotive operation: (*a*) vapor lock, (*b*) supercharger, (*c*) Bendix drive (Sketch).

36 *a* Air is being maintained in a group of rooms at 70° F. Dry Bulb, 63.5° Wet Bulb. Part of the air is to be recirculated and part is to be fresh air. Indicate diagrammatically the equipment needed to do this.

b It is desired to change the room conditions to 70° Dry Bulb, 58.5° Wet Bulb. What changes are necessary in the equipment to accomplish this?

37 A walking beam oscillates through a very small arc. It is 5 feet between the two applied forces, and the beam is supported by a steel pin 1½″ in diameter through a point 2 feet to the right of the left force. If the right force is 5000 pounds and the beam is to be made from commercial cast iron, calculate dimension of the beam at the pin section.

CONTRIBUTIONS PLEASE!

The Society desires State officers to send to the Editor at Harrisburg, Pennsylvania, all news of State activities of general interest or of special interest to the Society.

We are especially anxious to have the middle west and western State Societies have as prominent a place in the magazine as the eastern State Societies have had.

The western societies are newer and may be reluctant, but we assure them that we will be glad to use all of value they send to us.

We also welcome articles from individual members on professional subjects. THE EDITOR.

A Brief History of the Registration of Professional Engineers and Land Surveyors

In the Commonwealth of Pennsylvania

By CHARLES H. STEVENS, Chief Engineer, Department of City Transit, City of Philadelphia
also Chairman Committee on State Legislation of the Engineers Club of Philadelphia

Presented at a meeting of the Philadelphia Chapter of the Pennsylvania Society for Professional Engineers

Engineers, as a class, in the Commonwealth of Pennsylvania, have been lacking in appreciation of the dignity and importance of their professional standing and have shown in the past a great lack of interest in any movements designed to place their work before the public on a basis that would compare favorably with the esteem accorded practicing members of the Legal, Medical and Architectural professions. Such a spirit of indifference is harmful to the individual as well as to the Engineering Profession at large.

There are several reasons why this spirit is prevalent and I will mention several; first, the objections raised by men of acknowledged professional standing to submitting their qualifications to any official body in order to obtain permission to practice, second, the fact that a very considerable portion of all the engineering work performed in this Commonwealth is performed by men who are employees of the Commonwealth or its political subdivisions, of Railroads, Mining or Public Utility Companies, and Corporations, Industry or in the service of Practicing Engineers; third, a broad feeling of charity toward persons who are employed on engineering works but who have not yet attained sufficient technical knowledge and experience to qualify them to engage in responsible engineering practice; fourth, and lastly, the political mindedness of so many of our Public Officers and Members of our Assembly which leads them to hold the work of the Engineering Profession lightly, or to resort to attempts to repeal or amend existing legislation in the interest of individuals who have not been qualified to practice by our State Board.

In 1921 a draft of a Bill was introduced to the General Assembly which was designed to regulate the practice of engineering in our Commonwealth. When the introduction of this Bill was made public there was very considerable opposition offered by practicing engineers all over the state on the ground that it interfered unnecessarily with their prerogatives. However, the members of the Philadelphia Section of the American Society of Civil Engineers, under the leadership of Mr. Richard L. Humphrey, feeling that introduction of this Bill was a sign of the times and that engineers would do better to support it, endeavored to secure the type of a measure that they thought would be satisfactory rather than to waste their time and effort in opposition. With this thought in mind numerous meetings were held by the members of the Section, at which the merits and desirability of this type of legislation was discussed. A committee was appointed which cooperated actively with other engineers, the result of which was the draft of an Act which was passed by the Legislature and approved by the Governor on May 25, 1921.

Acting under the authority of the Act the Governor appointed a State Registration Board, composed of five members, two of whom were members of the American Society of Civil Engineers, and one each from the membership of the American Society of Mechanical Engineers, the American Institute of Electrical Engineers, and the American Institute of Mining and Metallurgical Engineers. This Board, organized under the Chairmanship of Mr. Richard L. Humphrey, and proceeded with the registration of the members of the Engineering Profession in the State.

They encountered very out-spoken opposition in a number of quarters, from men who refused to submit their qualifications, notably a practicing engineer residing in Scranton, and they were also pressed very hard to register men who were politically prominent but who did not possess, in the judgment of the Board, the necessary qualifications. The case of the practicing Engineer in Scranton was tested before the Courts and the Courts found that the Act was unconstitutional because of certain provisions which differentiated between the full grade of Professional Engineer and of Land Surveyor.

The former members of the Registration Board, aided by groups of engineers from different portions of the State, proceeded to draft a new Act, and, through the contacts made by Mr. Humphrey, it was learned that Governor Pinchot was sympathetic with this movement. Acting under the Governor's instructions Attorney General Schnader cooperated with the Engineers' Committee in the preparation of the Bill known as No. 415—"An act regulating the practice of the Profession of Engineering in all of its branches including surveying; providing for the registration of certain persons practicing or offering to practice said profession; conferring certain powers and imposing certain duties upon a State Registration Board for Professional Engineers, for the Court of Common Pleas of Dauphin County; and providing penalties."

This Act was passed by the Legislature and was approved by the Governor on the sixth day of May, A. D., 1927.

The Governor reinstated the State Board and again Mr. Humphrey was appointed as its Chairman and he continued in this position until his death on November 2, 1928.

It was unfortunate that the Board incurred the bitter personal animosity of some State Senators. This resulted in a determined effort to have this Act repealed.

This attempt at repeal was not successful, largely because of the untiring efforts and the unselfish devotion by Mr. Humphrey of almost his entire time during the period that the legislature was in session, aided by a number of devoted engineers from different parts of the State, of which it was my privilege to be one, and I well recall the seemingly unsurmountable obtacles that were placed in our path from time to time by influential members of the House and Senate. The defeat of this attempt at repeal was brought about largely by the support of the political organizations in Philadelphia and Allegheny Counties, aided to quite a considerable extent by independent up-state legislators and also by the Governor.

The Act has been subject to further attacks in almost every succeeding session of the legislature, inspired by the disappointed ambitions of men who were refused registration, and in the matter of the Scutt case, whose cause was championed by Senator Ruth of Reading, the Governor removed the President of the State Registration Board, Mr. C. E. Myers, on what appeared to be strictly political reasons, Mr. Myers, together with the other members of the Board, having carried out strictly the mandates of the Registration Act in refusing registration to Mr. Scutt.

A representative committee of the Engineers Club of Philadelphia, the Pennsylvania Society of Professional Engineers, and representatives of the engineering societies were granted a hearing by the Governor on Monday, May 11, 1936, at which time Mr. Charles E. Bonine, on behalf of the Committee, protested against Mr. Myers' removal, pointing out that Mr. Myers was guilty of no offense and that his removal appeared to be the result of political representations by Senator Ruth who championed Mr. Scutt in his fight for registration. Several other members of the Committee also presented their views to the Governor and received a very respectful hearing. To my personal surprise, toward the close of the hearing, the Governor summoned his secretary and advised him that he had reconsidered the matter and he directed his secretary to prepare the necessary papers reinstating Mr. Myers as a member of the Registration Board. Before concluding the hearing the Governor pointed out to the Committee that he would be glad to have the Committee submit the names of prominent engineers who, in their opinion, would be good material from which he could draw in filling other vacancies upon the State Registration Board, and under date of May 12, 1936, such a list was forwarded to the Governor by telegraph, by Mr. C. E. Bonine, Chairman of the Special Committee. About four or five weeks subsequent to the meeting the Governor reappointed Mr. Myers for the full term of six years on the Registration Board.

Unhappily, our professional groups do not maintain close contacts with one another, and there seemed to be a feeling, particularly on the part of the Architects, that their function in the construction of buildings, outranked that of the Engineers, and in 1935 a bill was introduced to the legislature which, if passed, would have deprived the engineers from designing buildings or obtaining permits for their construction or supervising the construction unless they were registered architects in this Commonwealth. This bill was known as House Bill 1750 of the 1935 Session, and was introduced quietly and probably would have slipped through unnoticed had it not been for the watchfulness of the Secretary of the State Registration Board for Professional Engineers and Land Surveyors, who very quickly brought it to the attention of the members of the State Board and to that of the Engineers Club of Philadelphia. Once more, through the use of the united effort of the Club's Committee on State Legislation, and the members of the Pennsylvania Society of Professional Engineers, this attempt to amend the Architects Act was defeated.

While this Act was pending I discussed the proposed change in the Architects Act with Mr. Rankin, a prominent architect of Philadelphia, who was very active in the preparation of the amendment in question, and while he showed a willingness to cooperate with the Engineers he insisted that some such provision as was proposed was necessary because of the difference in the practice of the State Registration boards for Architects and for Engineers, his point being that no architect could be registered unless he had passed a suitable examination while he alleged that in the admission of engineers to registration no examinations were held. He claimed that our procedure was faulty. I offered several suggestions at that time with the view of modifying the wording of their Act, striking out the word "architects" and substituting "those legally qualified" which I felt would protect the engineering profession. I later conferred with a group representing the Philadelphia architects and engineers, Messrs, Purvis, Morgan, Silverman, of the Architects and Mr. Kast, the Secretary of the Architects' Board at Harrisburg, and Messrs. Myers, Sacks, and Battin, of the Engineers at the Engineers Club on March 24, 1936, but no understanding was reached and the feeling of the representative engineers throughout the State was such that the matter of modifying the amendment was dropped. As the result of determined opposition brought to bear on all members of the legislature, the Bill was defeated. The placing of the appointment and supervision of the work of the secretaries of the various Boards under the head of the State Department of Public Instruction, which, in effect, could interfere seriously with the functioning of all the Registration Boards was put through and the engineers of the State were once more called on to prevent the removal of the secretary of the State Board, Miss Rebecca J. Nickles, who has handled this work from the time the first Registration Board was organized. It will be appreciated, I am sure, by all members of the Profession, that to subject the secretaries to the removal for the gratification of political whims, would result in serious embarrassment in the conduct of the work of the Boards. An effort was made to remove Miss Nickles but the head of the Department of Public Instruction, probably with the Governor's approval, heeded the out-spoken protest of the State Board and of a number of engineers who were vitally interested in the matter.

So far the Engineers have been on the defensive. The Committee on State Legislation, of which I am Chairman, has on several occasions considered the desirability of offering amendments to strengthen our present Act, and on one occasion, when the Registration Board was holding its meeting in Philadelphia, I was invited by the President of the Board, Mr. Clemens, to meet with them and to discuss the matter of the Board's workings and of any measures that might be deemed desirable to strengthen its position. Mr. Clemens, who represented the Scranton area of the State, was disturbed over the difficulty in limiting the practice of surveying in and about the coal mines to registered surveyors, and he expressed the thought that if an amendment were drawn on such surveying work he thought the coal mines should be specifically listed in the qualifications as work which would be required to be performed by registered land surveyors. With these thoughts in mind I prepared a tentative draft in which I attempted to strengthen the Act by amending the definitions of an Engineer and of a Land Surveyor, using the phraseology of the model registration act adopted by the National Engineering Societies of our country, and also incorporating in the qualifications of land surveyors a specific reference to mining operations. Also, to increase the period of active practice for registered applicants for registration as Engineers from four to six years, and also making some modifications in the references to educational qualifications. However, on further discussion of these suggested amendments, none of which are very important in themselves, with the members of the State Board it seemed to be the general feeling at that time that due to the opposition which we had been facing over this continued period, it was not wise to make any moves that would bring our Act up for active discussion be-

(Continued on page 23)

EDITORIAL COMMENT

Professional Engineering versus Unionism

During recent years the status of professional engineers has been enhanced by the adoption of laws in most States providing for licensing and registration upon meeting the required qualifications. Public recognition has been further advanced by the efforts of the Society of Professional Engineers through its National, State and Local bodies. The ground gained must be zealously guarded and it is natural that anything which savors of a departure from the high ideals set up should be critically regarded.

In this connection, an incident has lately come to the attention of the officers of the New York State Society of Professional Engineers in which a member initiated the formation of an organization designated as "Supervising Professional Engineers Union," under charter from a local of one of the two national labor organizations. Accompanying this, a blind advertisement for engineers at attractive salaries, was inserted in one of the leading New York papers and those who responded are reported to have been solicited to join the union at a high intiation fee. It is said that the prospective positions had to do with inspection of certain building operations in New York City and were to be correlated with the activities of the local building trades union.

This led the President of the New York State Society of Professional Engineers to issue the following announcement:

"Engineers and other professional men do not belong in labor unions and should not be solicited, nor encouraged to join. Unionization is inconsistent with the professional spirit and attitude, which places the highest service to the public above personal gain. The State Societies of Professional Engineers and their National Society are interested in improving the economic and professional status of engineers, but believe this should be accomplished through education and public appreciation; not through methods of unionization. We recognize that unionization has its place, but that place is not in the learned professions. Professional men occupy a position of public trust, between capital and labor, and unionization is inconsistent with the highest discharge of that trust."

Although it is true that the constitution of the Society of Professional Engineers does not prevent a member from joining a union, both the State and National bodies have previously gone on record as fundamentally opposed to the idea of unionization for professional men. This is not because of antipathy toward labor unions, but largely for the reasons stated and, further, because it is highly desirable that such men be unfettered in the exercise of their duties which often involve relations between employers and labor. In many cases professional engineers are themselves employers of labor and, in the event of their unionization, it is conceivable that most confusing situations might arise. Such practical considerations outweigh individual opinions. Moreover, it is incontrovertible that unionism exercising a certain leveling effect which is inconsistent with the evaluation of professional service. Finally, any move toward trade unionization of engineers is very likely to undo years of effort to increase public recognition of engineering as a profession.

Reprint from Combustion—February, 1939.

HIGHER STANDARDS FOR THE ENGINEERING PROFESSION

Speaking as a representative of the educators, Dr. George F. Zook, President of the American Council on Education, delivered an outstanding and thought-provoking address at the recent annual assembly of the American Engineering Council at Washington, D. C. He listed as characteristics of a profession the following points: a degree of intellectual attainment; a specialized technique; skill in the practical application of knowledge; high ethical standards; a constant effort to advance the frontiers of knowledge. The true professional man, he declared, places public interest above private personal gain.

Turning to professional training, Dr. Zook pointed out that in a society of increasing complexity, the United States is the only highly developed nation that still compresses secondary education into a four-year term. Either our high schools must do a more efficient job than they have been doing, he predicted, or the course of study must be lengthened by one or two years.

Engineers must realize that they live as members of society, not simply as professional technicians. They need more cultural studies. Medicine and law recognize this by requiring two years of pre-professional collegiate training. Present educational deficiencies are particularly noticeable because of the condensed secondary term.

The public acceptance of a profession depends primarily upon the efficiency with which it discharges its responsibilities. One important matter is that of admission to the profession, which the public normally leaves to the regulation of the profession itself. Low standards of admission will react to the detriment of professional standing.

In reply to the claim made by one of the engineering educators present that one half of the present average engineering curriculum is non-technical, Dr. Zook stated that it is common practice to specify such non-technical courses along lines allied to technical requirements,—resulting in what he termed "segmented" education. *What is needed,* he pointed out, *is more study in the line of broad and general education.*

IMPORTANT DECISION

Following is copy of a letter from John J. Bennett, Attorney General of the State of New York, containing an opinion regarding the necessity for engaging the service of a licensed professional engineer and architect by Home Owners' Loan Corporation. As this is an interpretation of the law of the State in reference to reconditioning and alterations to houses and other buildings, it is instructive and informative.

February 17, 1939

Joseph W. Sanner,
State Counsel
Home Owners' Loan Corporation,
270 Broadway, New York, N. Y.

My dear sir:

Your letter of February 9, 1939, asking for an opinion concerning the necessity for employment of licensed professional engineers and architects by Home Owners' Loan Corporation has been received.

You ask, with reference to the fee reconditioning inspector:

1. Is he required to be a licensed engineer or architect as provided in Articles 55 and 56 of the Education Law?

2. Is it a violation of any state law for a fee reconditioning inspector, who has retained a licensed engineer

(Continued on page 24)

NEWS OF STATE SOCIETIES

Editor's Note: THE AMERICAN ENGINEER will carry reports of State and Chapter meetings in the issue succeeding their receipt. We must have copy by the 20th of the month preceding the month of issue. Copy received after that date runs the risk of not being on time.

ILLINOIS

LAKE COUNTY CHAPTER

The regular monthly meeting of the Chapter was held Wednesday, Feb. 8th, 1939, at the Karcher Hotel, Waukegan, with thirty members and guests in attendance.

President Reilly called the business session to order. The minutes of the January meeting were read and approved.

A card from the H. N. Wentworth family was read, thanking the Chapter for its kind remembrance during their recent sorrow.

President Reilly then read a communication from H. E. Babbitt in regard to the Coordinating and Cooperating Committee notifying Mr. Babbitt of the programs the Chapter has had and has planned for the future. The letter stated that the enclosed form should be filled out and returned to Secretary Babbitt so that his office might act as a clearing house for all Chapters desiring help in providing programs for their Chapter meetings. The Communication was referred to J. H. Harper, Chairman of the Committee.

Committee reports were asked for but there were none. The Secretary then presented James Anderson III, Past President, with a gavel properly engraved signifying that he had served as President of the Chapter in 1938.

Attention was then called to the fact that M. E. Amstutz, a member of the Chapter, had been recently elected State President of the Illinois Society of Engineers.

President Reilly then called on R. M. Lobdell, the delegate to the Illinois Engineering Council, for a report concerning the recent meeting of the Council. Mr. Lobdell stated that he believed most of the members of the Council were uncertain as to their duties as a delegate and were not thoroughly familiar with the proposed Registration Bill. The Council agreed that it should sponsor a bill but were reluctant to introduce a Bill at this time. Further, he stated that it was quite apparent that some of the delegates are not whole heartedly supporting any Registration Bill and he felt certain that several engineers throughout the State might attempt to block the Bill for reasons that he believed were not just or equitable to the rank and file of the engineering profession. However, it is imperative that some Bill be introduced to this session of the General Assembly so that all the good work that has been accomplished will not be lost.

Mr. Amstutz then informed the Chapter that he had received a telegram from the Ohio Society of Engineers stating that Mr. Ford, President of the National Society of Professional Engineers would speak over the Mutual Broadcasting network at 5:30 P. M., Thursday, Feb. 9th.

A general discussion of the price of meals and the location of the meeting place resulted from President Reilly's statement that he had been told at the State Convention that our dinner prices seemed high and may be the reason that the attendance at the meetings did not increase.

The meeting was then turned over to James Anderson III, Chairman of the Program Committee. Before introducing the speaker, he stated that he had received a phone call from F. J. Geraghty's son requesting him to visit Mr. Geraghty. He called on Mr. Geraghty and learned that Mr. Geraghty deeply appreciated the honor conferred on him by the local Chapter and desired Mr. Anderson to express his thanks to the Chapter. Further, Mr. Geraghty would appreciate having his old friends drop in for a visit and when he is able, he will attempt to attend a future meeting.

Mr. Anderson then introduced Mr. Louis Robertson, patent attorney. As Mr. Robertson began his talk he called attention to the fact that there was another patent attorney in the audience. Mr. Misagades, patent attorney for the Fansteel Corp., was introduced. Mr. Robertson then began his talk and showed the Chapter many odd and, some might think, ingenious inventions. After showing the inventions which were very entertaining, he gave a talk on patents and how they are obtained, also showing many recent and very worthwhile patents, as well as older patents that have added much to the comfort and advancement of the nation. At the conclusion of his talk, Mr. Robertson was besieged with questions. It appeared that many present were perhaps inventors at heart and were trying to obtain some free legal advice.

The meeting then adjourned.

ROCK RIVER CHAPTER ANNUAL MEETING

Brinton Masonic Temple, Dixon Thursday, February 16, 1939.

Turkey dinner served at 7:15 p. m. to 54 members and 67 guests. There were 65 paid reservations at one dollar each. We had guranteed Dorothy Chapter, OES, for 130 reservations, having had 69 reservations from our members, and disposed of four complimentary tickets to the speaker and the press, a total of 138. A heavy snow fell during the afternoon and night and this detered a number of our members from participating. The dinner was complimentary to those members whose dues were paid for 1939.

The business meeting was called to order by President McLean at 8:15 p. m.

The minutes of the meetings of Sept. 9 and Nov. 18, 1938, were briefly reviewed and approved as written.

The report of the Secretary-Treasurer was read, approved and ordered filed.

The Membership Committee reported favorably on the petitions of Messrs. H. E. Mundhenge (Active), O. W. Dodd (petitioned as Affiliate changed by ISE to Active), G. B. Flueh (Affiliate), A. W. Brown (Active), C. S. Monnier (Active), D. B. Assenheimer (Active), D. S. Kingman (Active), J. W. Srisman (Affiliate), C. J. Knox (Associate), L. C. Adams (Affiliate), R. E. Ayerse (Affiliate), Arnold Schultz (Active) and Fred W. Leake, Jr., (Active).

Mr. E. W. Carlson moved that all of the above be elected to membership in Rock River Chapter, subject to the action of the Illinois Society of Engineers on those applicants who are not yet members of the Society. Seconded. Carried.

The Nominating Committee reported they had selected Mr. W. H. Haefliger as President, Mr. B. C. Brewster as Vice-President, and Mr. A. H. Ferger as Secretary-Treasurer for the coming year. Mr. Bartholomew moved that the Secretary be directed to cast a unanimous ballot for the above named. Seconded. Carried. The above named were therefore elected to serve as the officers of Rock River Chapter for the coming year.

Mr. McLean made his report as retiring President, which was approved and ordered filed.

Mr. Fred W. Shappert then presented a gavel to President McLean. The gavel was made by some of Mr. Shappert's employees from a piece of red oak piling which had been under one of the piers of the Galent Avenue bridge (Dixon) since the summer of 1868, and was estimated to be now about 175 years old. President McLean accepted the gavel and in turn presented it to Mr. Haefliger to use during his term as President.

President McLean then presented Dr. George W. Ekblaw, Geologist, Illinois State Geological Survey, and a member of the ISE, who spoke most interestingly on geology in general, the glacial and inter-glacial periods, and the geological formations and the reasons therefor of the Rock River Valley and northern Illinois. Dr. Ekblaw illustrated his talk with a large number of slides. Much favorable comment was heard concerning both Dr. Ekblaw's talk and the dinner. A meeting of this nature seems to be of interest to not only the Engineer, but to his friends and many others not related to Engineering.

The meeting was adjourned at 10:15 p. m.

A. H. Ferger, Sec.

JOLIET ENGINEERS CLUB

Minutes of Charter meeting held at the Universalist Church auditorium Feb. 23, 1939.

A joint meeting of the Joliet Chamber of Commerce and the Joliet Engineers Club was held at 12:00 o'clock noon, Thursday, Feb. 23, 1939, at the Universalist Church auditorium.

The meeting was called to order by Dr. Bert G. Wilcox, President of the Joliet Chamber of Commerce who welcomed the Joliet Engineers Club and complimented them on the formation of such an organizatioin. Dr. Wilcox then introduced Mr. M. E. Amstutz, President of the Illinois Society of Engineers, who explained the purpose of the Society and welcomed the Joliet Chapter as an integral part of the Illinois Society of Engineers. Mr. Amstutz then presented Mr. Whelan, President of the Joliet Chapter with their charter. Mr. Whelan received the Charter for the Joliet Club and after a few brief remarks introduced Mr. L. D. Gayton, Vice-President of the Illinois Society of Engineers and Chief Engineer of the City of Chicago.

Mr. Gayton gave a very interesting talk on the history of the Water-Way through Joliet, and the progress that has been made by the City of Chicago in the treatment of raw sewage. Mr. Gayton suggested that as only 37 per cent of the sewage in Chicago was now being treated and that it would be some time before their goal of at least 85 per cent treatment would be reached, that concerted action be taken by our public officials to increase the flow from Lake Michigan from 1500 cu. ft. per second, to 5000 cu. ft. per second, for a period of two years or until such a time that the sludge now present in the river bed be thoroughly oxidized.

Dr. Wilcox then introduced Warren L. Wood, Representative in the General Assembly from this district. Mr. Wood is the leader of a bill now before the State Legislature for the purpose of petitioning the Federal Government to increase the flow from Lake Michigan from the present flow of 1500 cu. ft. per second to whatever flow is deemed expertly advisable in order to eliminate a nuisance in the Desplaines River Valley.

There were thirty-three members of the Joliet Engineers Club present at the meeting.

CENTRAL ILLINOIS CHAPTER

The sixth meeting of the winter program, a dinner meeting, was held in the ballroom of the Hotel Orlando, Decatur, Illinois, Thursday evening, February 16, 1939. Forty-four plates were served. Six guests came in after the dinner, making a total of 50 in attendance for the lecture.

Following the dinner President Larsen opened the meeting by calling for the Minutes of the January meeting. The Minutes were read by the Secretary, and approved as read.

President Larsen then called for reports from the Legislative Committee, Membership Committee and Social Committee. No report from any of these committees.

President Larsen then made reference to one of our members, Mr. Beecher Hughey, present Commissioner of Streets, who was running for re-election and who had passed out to those present bridge score pads as his compliments. Larsen stated that anyone who was not obligated otherwise should give Mr. Hughey his support.

President Larsen then introduced the principal speaker of the evening, Mr. Arnold Pfau, consulting engineer of the Hydraulic Turbine Division of the Allis-Chalmers Manufacturing Company, Milwaukee, Wisconsin, stating that it had been through the good offices of Mr. Dahms, the Allis-Chalmers representative in this district that we were able to secure such an outstanding authority on water turbines, as a speaker for the Central Illinois Chapter.

Mr. Pfau presented a very interesting and educational illustrated lecture on the design, construction and installation of water turbines at Boulder Dam and various other large hydro-electric plants in the United States. The lecture consisted, first, of a short history or resume of the development of water turbines in this country and in Europe, and especially pertaining to the part Allis-Chalmers Company and their Swiss engineers and designs played, and some of the different problems encountered in the country which were contrary to the Swiss conception and practice. Second, an illustrated talk, with charts, showing the three different types of water turbines in use at the present time, their essential differences and their various

uses. Third, an illustrated lantern slide lecture covering the whole field of water turbine construction, installation, etc., the problems encountered in the manufacture and transportation of large castings, the various tests and methods devised for testing before placing in service, unique installation problems arising one each individual project, etc.

Following Mr. Pfau's lecture President Larsen appointed the following Nominating Committee:

Mr. Alex F. Campbell, Chairman (I. T. R. R.); Mr. John Kuhns (Staley Company), Mr. E. C. McDonald (Leader Iron Works), Mr. E. A. Pettitt (M. V. S. S. Co.), Mr. W. S. Elsele (W. P. A)

President Larsen asked that they read over the local Chapter Constitution and that the election would be held in April, the officers to take office at the May meeting.

President Larsen then announced that for the March 16th meeting he had secured the Aluminum Company of America to give a sound picture on the subject "Aluminum."

There being no further business, the meeting was adjourned.

BLACKHAWK CHAPTER'S FEBRUARY MEETING

Mr. Loran D. Gayton, city engineer for Chicago, Illinois, vice-president of the Illinois Society of Engineers, and president of the Illinois section of the American Society of Civil Engineers, spoke at a dinner meeting held by Blackhawk Chapter at the Harper House in Rock Island on the evening of February 7, 1939.

About 60 engineers were present at the meeting to hear Mr. Gayton speak on the development of Chicago as a seaport. After a brief but complete outline of the geographical and geological factors which have been, in the main, responsible for Chicago's having become the fourth largest city in the world in population and the third greatest in financial strength, Mr. Gayton discussed the engineering structures necessary by reason of the enormous growth in a little more than 100 years of a little trading post to one of the world's great cities.

Mr. Gayton stated that with Chicago situated in what is considered the world's richest area, there should be no limit to its growth, but unless Chicago can compete with those cities having the benefits of cheap transportation, its growth is doomed. For Chicago to go ahead or even to retain its present important place, it must have an outlet to the sea.

Illustrating his lecture with slides, Mr. Gayton discussed briefly, but graphically, the two projected waterways, the future development of the St. Lawrence Waterway for ocean going vessels, and the development of the Lakes to the Gulf waterway and the tremendous impetus which these developments would give to the industrial development of the Mississippi Valley as a whole. The estimated cost of the St. Lawrence Waterway has been estimated at about $800,000,000. Mr. Gayton, however, held out very little hope for the development of this waterway in the near future since both the St. Lawrence and Lakes to the Gulf Waterways are necessary and unless the question of allowing enough water to be drawn from the Great Lakes for the Lakes to the Gulf Waterway is settled to the satisfaction of the twenty-four Mississippi Valley states, their opposition to the St. Lawrence Waterway will effectually block its development. However, in his opinion, the restriction of Chicago's expansion will eventually be removed by the development of the two routes to the sea, giving Chicago the benefit of adequate, cheap water transportation, such as Pittsburgh now enjoys, and which is vital to the future development of vast areas in the Mississippi Valley.

Mr. Gayton's lecture was of particular interest to those engineers who are familiar with the nine-foot channel project on the Upper Mississippi River, as he demonstrated by facts and figures the effect that the development of water transportation has had on the development of regions in this country which were at one time too far removed from markets to justify their development.

At the conclusion of his formal talk, Mr. Gayton was subjected to a barrage of questions relative to the engineering structures in Chicago, with which he is familiar and of the various engineering problems encountered in their design and construction.

MISSOURI

HOUSE BILL NO. 468 IS REGISTRATION ACT

Proposed Law Introduced in House on Monday, February 27th

Representative Claude Arnold, of Stoddard County, introduced to the 60th General Assembly of Missouri a proposed Registration Bill for Architects and Engineers on Monday, February 27th.

With this proposition before the Assembly it is imperative that the engineers and architects of Missouri leave no stone unturned in working for the passage of the act. The law will form the corner-stone of a profession that has long neglected its own duty and it will mark the beginning of greater protection to the public in Missouri.

The proposal, as introduced, is the same as was presented in the *Engineer* in the December issue, and represents the combined thought of engineers and architects of every part of the state. The frame work of the proposed law is the model approved by the principal engineering and architectural organizations of the country and the act is similar to acts adopted recently in many surrounding states.

One feature of the law as proposed is a reciprocity clause designed to assist *qualified* engineers of other states who wish to practice in this state. This feature is a just one and points out that the law is not designed to set up a barrier against engineers of other states.

Another important feature is the five-year period allowed for application by engineers who are qualified by experience but do not claim educational qualifications. This allows men in this group to acquire the full needed experience and entitles them to the full benefits of the law without requiring technical examination.

The Society has issued instructions to members regarding promotion of the bill and it is urged again that every engineer make it a personal duty to do everything he can to help the cause along. In this connection, all members are reminded that a great deal of the work will naturally fall on a few men and these men should be given all assistance they need. Funds for carrying on the necessary work attached are limited and contributions will be welcomed.

MASS MEETINGS FEATURE PAST MONTH'S ACTIVITY

State-Wide Interest Aroused in Discussions of Proposed Legislation

Mass meetings of engineers in St. Louis, Rolla, Jefferson City, and Macon have featured the program of activity of the Society during the past month. These mass meetings were called for the purpose of discussing the proposed legislation to regulate the professions of Architecture and Engineering.

The first and largest meeting was held in St. Louis on January 30th. One hundred and forty-nine architects and engineers attended the meeting held at the headquarters of the Engineers' Club of St. Louis. Engineer E. W. Carlton, president of M.S.P.E. and A. H. Baum were the principal speakers on the program and gave most of their time to answering the questions of the interested hearers.

The results shown by the St. Louis gathering were that the proposed legislation has the support of the members of both professions. Questions most asked were interpretive in character.

The meeting at Rolla was sponsored by the Rolla Chapter of M.S.P.E. on February 10th, and was attended by about forty engineers from the area. The principal speakers on this program were Engineer C. W. S. Sammelman, Secretary of the Engineers' Club of St. Louis, and Engineer A. H. Baum, representing the Joint Council of Associated Engineering Societies of St. Louis. In addition to discussing the purposed legislation, Engineer Sammelman called attention to some developments in the profession that require a strong organization and recognition by the public. The points brought out by Sammelman were an integration of isolated occurrences and opinions that were gradually developing into a serious professional problem.

The meeting at Jefferson City, on February 2d, was held in conjunction with a meeting of the newly formed Engineers' Club of Jefferson City. Engineers L. A. Pettus, E. W. Carlton and L. S. Washington attended this meeting and talked briefly on the proposed legislation and the plans for its prosecution in the legislature.

The Macon Chapter of M.S.P.E. sponsored the meeting held in Macon on February 24th. A dinner meeting for the chapter was attended by thirty-five engineers from the area. The mass meeting was held in the new Division Two headquarters and was attended by more than fifty engineers. Engineer W. H. McDill, Secretary of M.S.P.E., and Engineer O. J. Lawb, President of the Macon Chapter, discussed the registration bill and answered the questions of the engineers present.

Meetings planned for the immediate future are being arranged in Kansas City, Hannibal and Joplin.

NEW JERSEY

THE HUDSON ENGINEER

Published Monthly by the Professional Engineers Society of Hudson County, N. J.

JAMES F. KELLY, *President*
RAYMOND F. LEUTHY, *Secretary*
FRANK C. SCHLINDWEIN, *Recording Sec'y*
WILLIAM G. CHRISTY, *Vice-President*
JAMES A. FOLEY, *Treasurer*
NORMAN B. NEWCOMB, *Financial Secretary*
HUGH C. CLARKE, *Trustee*

The February meeting was held Monday evening, February 27 at Public Service Auditorium, Journal Square, Jersey City, N. J.

Guest Speaker: Father J. Joseph Lynch, S. J. Associate Professor of Physics, Director of Seismology Laboratory, Fordham University, N. Y. Topic: *"Seismology — Cosmic Ray — Radio Activity."*

THE MAN OF THE MONTH

The Hudson Engineer, on behalf of the Professional Engineers Society of Hudson County, N. J., takes pleasure in honoring Engineer Norman B. Newcomb for engineering achievement and service to the profession.

Engineer Newcomb was born in Oyster Bay, Long Island, spent his early years in Woodhaven, L. I., and received his elementary education in the public schools of New York City. In 1922, his father being an engineer in the service of the Board of Water Supply of New York City, moved the family to the Catskill Mountains, where he was employed on the Shandaken Tunnel and Gilboa Dam and Reservoir.

High School education was received at Roxbury, N. Y., Curtis High School, Staten Island, and Plainfield, N. J., High School, graduating from the latter in 1926. He then studied Civil En-

gineering at Cooper Union Institute of Technology (Day) for three years with the aid of a scholarship, and thereafter completed his studies at Cooper Union (Evening), graduating with the degree of B. S. in C. E. He now holds the State of New Jersey Professional Engineers License No. 3559, Construction Engineer and Land Surveyor.

With the exception of one year, Newcomb has been employed by the Port of New York Authority on their various undertakings. He was first employed as Junior Engineer on preliminary surveys on the new Lincoln Tunnel. He has worked on line and grade to a large extent, and during the construction of the south tunnel was in the field office on calculations. A special ground movement study was conducted by him in the field to determine the effect of "shoving the shield" on the ground around the tunnel and also the magnitude and extent of this disturbance. This was to give an accurate idea as to how far away from an existing tunnel a new tunnel could be built without unduly injuring the latter by displacement of the ground or river silt in which it was built.

After the completion of the first tunnel he spent about two years as Chief of Party on line and grade on the construction of the Lincoln Tunnel Plaza and the first part of the loop in Weehawken, N. J. At present, he is Assistant Office Engineer (Field) in charge of office calculations and field layout. He is also an instructor of Structural Drafting in the evening course at Pratt Institute, Brooklyn, N. Y.

Engineer Newcomb has been an active member of the Professional Engineers Society of Hudson County and the State Association, having served on various committees. He served as Chairman of the Membership Committee during 1938, which committee was successful in securing many new members. December last he was elected to the office of Financial Secretary. His chief diversion is tennis.

1939 COMMITTEES

As per our usual practice at this time of year, the Hudson Engineer lists for your convenience the chairmen and members of the Committees for 1939, who were recently appointed by President James F. Kelly. We suggest that you preserve this issue for ready reference, and also that you inform the chairman of any problem relating to his committee that may be acted upon in the interest of the Society.

LEGISLATION—Herbert Hartman, Chairman, Nicholas J. McGuiness, Cecil Lurie, Henry S. Germond;

ETHICS AND PROFESSIONAL PRACTICE—William C. Christy, Chairman, Abraham Walton, Arthur Gulbrandsen, Leo Krahn;

EMPLOYMENT—Hugh C. Clarke, Chairman, Col. Hugh A. Kelly, Harold Ridley;

PUBLIC AFFAIRS—Otto A. Knipping, Chairman, George Yeomans, John C. Heffernan, Edward A. Walker;

EDUCATION—Joseph P. O'Leary, Chairman, Arnold Weisselberg, William F. Caldwell, Achilles Angelicola;

PROGRAM—C. George Krueger, Chairman, Eugene Koenig;

ENTERTAINMENT—James B. Collins, Chairman, Harold T. Anderson, William Goldey Otto Cordes, Edward J. Groeschel, Charles Scheidecker, John C. Morris;

BY-LAWS AND FEES—Alvin Ruefer, Chairman, Peter F. Daly, Samuel Aronson, John L. Hodges;

MEMBERSHIP—Edward Saphore, Chairman, Louis Griesinger, Otto Scholl, John Denno, Herbert Feinen;

PUBLICITY—Raymond F. Leuthy, Chairman, Frank C. Schlindwein, Editor, Phillip J. Healey, Charles H. Spence;

SAFETY—Hugh C. Clarke, Chairman, Clinton Froelich, Victor J. Smith;

AUDITING—Harold T. Anderson, Joseph Maulbeck.

JUNIOR ENGINEERS

It has come to our attention that the State Association, through President Engineer Spencer C. Hamilton, Jr., has appointed a standing committee for the year to be known as the Junior Engineer Committee.

This committee will study ways and means of preparing a place in our membership for the Junior Engineer, to the end that he shall be properly prepared as a Professional Engineer and in the interim kept away from harmful organizations and thought.

The Junior Engineer in our own chapter has been the subject of much thought and deliberation. We feel this to be a highly commendable move and await with interest the suggestions of this committee.

MINUTES OF BOARD OF TRUSTEES MEETING OF THE NEW JERSEY ASSOCIATION OF PROFESSIONAL ENGINEERS AND LAND SURVEYORS HELD AT THE ROBERT TREAT HOTEL, NEWARK, NEW JERSEY.

Those present included Engrs. Hamilton, Pray, McKee, Scanlon, Jacobs, Wise, Trimpi, Randolph, Mueller, McInnis, Taylor, Braun, Branin, Matte, Livermore, Rice, Runyon, Andress, Parsons, Lewis, Stegman, Kissam, Weeks, Kelly, Miller, Lehlbach.

The meeting was called to order at 8:30 P.M. by President Hamilton who spoke briefly, pointing out that "Promptness" would be his watchword in directing the meetings during his term of office.

The minutes of the previous meeting (Convention) were briefly discussed, interest being centered on the resolutions passed. These minutes were approved.

Treasurers report was given by Engr. Weeks showing a balance of $650.00. Approved.

Executive Secretary Starr introduced by Engr. Weeks.

Engr. Weeks speaks on the feasibility of starting an employment bureau within the State Association and in this connection reads a letter from Exec. Sec. Conlon of the National Society—

Feb. 17, 1939. New York.

Engr. W. A. Stubbs
Secretary, N. Y. St. S. P. E.
Grand Central Terminal Bldg.
New York, N. Y.

Dear Secretary Stubbs;

Confirming our telephone conversation of a few moments ago, I would appreciate receiving applications from licensed professional engineers who are Chemical engineers, having had 10 years experience and capable of being placed in responsible charge without supervision on development work with an oil company. There are three positions available, and the salary will depend upon the experience and qualifications of the applicant.

If you will have these men send me two copies of their records, they will be transmitted immediately to the prospective employer, and if he is interested in their particular qualifications he will contact them direct. In no case will we be able to answer correspondence to the applicants with respect to the positions. This is necessary because of the fact that this office is already overloaded with work. We are merely attempting to help our members in this manner by furnishing contacts for them, and no money has been appropriated by the Board of Directors for employment purposes.

I also have another vacancy for a licensed professional engineer who is a Mechanical engineer and has had considerbale experience with commercial refrigeration installations. This is a court case and payment will be on a per diem basis. This man's services are needed immediately, and if you know of an engineer who meets these qualifications, I would suggest that you have him forward two copies of his record to me immediately.

Very sincerely yours
(signed) Willard S. Conlon
Exec. Sec.

President Hamilton discusses the importance of Committee work.

President Hamilton calls for report of 1940 Convention Committee and Pres. Branin of South Jersey Chapter, which chapter is to sponsor this convention, for the sake of greater efficiency, recommends that all executive detail be left to Engr. George Andress. This being agreeable to Engr. Andress, he is appointed Chairman of the 1940 General Convention Committee by Pres. Hamilton.

President Hamilton calls for report of the Membership Committee, Engr. Chester Mueller, Chairman—no report.

Prof. Kissam reports on W.P.A. Professional Engineers Projects Committee and in this connection reads a communication from Chairman C. George Krueger relative to Geodetic Control Survey Project—

STATE OF NEW JERSEY
Department of Labor
Trenton, N. J. Feb. 14, 1939.

200 East 5th St.
Paterson, N. J.

Dear Engineer Weeks;

I have been advised by Dr. Maurice F. Neufeld, Acting Secretary, New Jersey State Planning Board, that the Board is taking favorable action on the State-Wide Geodetic Control Survey Project, in which the State Association is vitally interested.

This matter has been the subject of several hearings beween the Committee, consisting of Engineers Russell Wise, Philip Kissam, the undersigned, and interested parties.

In accordance with the agreement, it is now our duty to sponsor a bill in the Legislature to provide necessary funds for the State Planning Board to finance the Project.

I am addressing a copy of this letter to Engineer Russell Wise, Chairman of the Legislative Committee for further handling.

Yours very truly
(signed) Geo.
Deputy Commissioner of Labor

Chairman Russell S. Wise of the Legislative Committee reports as follows—

(1) Bill being prepared for $15,000.00 appropriation to State Planning Board to sponsor the State-Wide Geodetic Control Survey Project. (All work conflicting with private engineering practice will be stopped by W.P.A. if we will sponsor necessary projects to employ these men. Asks for active support of all Chapters to get this bill through).

(2) Building Code Bill will be prepared and introduced in the Legislature this year.

(3) Diversion of Highway Funds—Constitutional amendment will be sought to prohibit diversion of motor vehicle taxes that are dedicated to highway purposes.

(4) Amendment to Licensing Law (Sec. 20, Chap, 342, Laws of 1938)—
"Nor as prohibiting the practice of land surveying in connection with the examination of land titles by any corporation legally authorized under the laws of this State to transact the business of insurance or guaranty against loss or damage on account of encumbrances upon or defects in title to real property, provided such land surveying is performed by or under the direction of a licensed land surveyor.

Pres. Hamilton opens discussion on re-appointment by Gov. Moore of John C. Remington, Jr., to the State Board of Professional Engineers and Land Surveyors, stating that strong protests against this appointment have been forwarded to the Governor and to the Judiciary Committee of the Senate with the result that Senator Foran, Chairman of the Judiciary Committee, has advised that the appointment will be held up pending a hearing.

Engr. Taylor stated that South Jersey Chapter felt it only reasonable to suppose that they should be entitled to one representative on the State Board. At a recent meeting of this chapter it was voted to submit the following for consideration—Engrs. Sleeper, Keasbey and Sherman—and as the vacancy would not exist until May 1st it was felt that final consideration at this February meeting would suffice. Mr. Remington has been a member of the State Board for 15 years and has been very inactive and disinterested in the affairs of both the South Jersey Chapter and the State Association.

Trustee Wise of Passaic County Chapter advised that he was authorized to approve the recommendations of the South Jersey Chapter.

Prof. Kissam of Middlesex County Chapter stated that their candidates for the vacancy were Engrs. Goodkind, Sleeper and Keasbey.

Engr. McKee of Monmouth County Chapter stated that his chapter had taken no action.

Engrs. Jacobs of Hudson County and Rice of West Jersey chapters also stated that their chapters had taken no action.

Pres. Hamilton read from the State Statutes to the effect that appointments to the State Board of Professional Engineers and Land Surveyors must be made from lists submitted by the State Engineers Society and stated that nominees should be selected at this meeting in order that the chapters be enabled to consider them at their next meetings.

Trustee Mueller of Essex County Chapter endorses the South Jersey Chapter nominees.

A vote being taken, it was decided to submit the names of Engrs. Sleeper, Keasbey and Sherman to Gov. Moore to fill the vacancy in the State Board due to the expiration of the term of John C. Remington, Jr. on May 1st.

Prof. Kissam withdrew the name of Morris Goodkind.

Engr. Taylor made a motion to protest and contest the reappointment of the present nominee in case he is approved by the Senate.

Engr. Wise made a motion that this matter should be referred to the Executive Committee with power to employ counsel if necessary.

Engr. Taylor withdrew his motion and the Wise motion was passed.

Engr. Mueller proposed that a letter be sent State Board Member Remington suggesting that he retire upon completion of present term. However, upon discussion, this proposal was dropped.

Engr. Jas. Kelly was introduced as a new member of the State Board, thanking the Association for their efforts in his behalf.

Engr. Parsons reported on progress of "The New Jersey Engineer."

Pres. Hamilton advised the Budget Committee to get busy and outlined the purposes of the Land Surveyors Committee.

Pres. Hamilton suggested that the Prosecutions Committee meet with Dr. Runyon and State Board Member Kelly.

Engrs. Randolph reports on the mis-use of the term "Engineering" in Morris County and Engr. McKee reports on methods of combating this evil.

Dr. Runyon remarks on violations and suggests that the Association term "Prosecutions Committee" be changed to "Violations Committee" inasmuch as the actual prosecution of violations of the term "Engineering" will hereafter be up to the State Board; and also suggests that the State Board be advised of the names of members of the Violations Committees of the various chapters in order that they may work together.

By proclamation Pres. Hamilton stated that the "Prosecutions Committee" would hereafter be known as the "Violations Committee."

Dr. Runyon stated that April 1st the State Board would start investigations and enforcement of the Licensing Act by paid investigators. State Board Member Kelly concurred with Dr. Runyon.

Pres. Hamilton reads a report from Engr. George Randolph, National Director, asking for suggestions as to the matter of THE AMERICAN ENGINEER. Pres. Hamilton is of the opinion that if the National Society needs additional dues, it should abandon THE AMERICAN ENGINEER and use that dollar.

Engr. Paul Rice explains the present status of West Jersey Chapter in response to inquiry by Pres. Hamilton. The Chapter has but ten members and no interest.

President Hamilton discusses the advisability of holding trustee meetings at stated intervals and it is agreed that the first Tuesday of each month will be the best time—April 4th to be the next meeting date.

Pres. Hamilton requests reactions on the dinner served prior to the meeting and the concensus of opinion was that $1.25 rather than $1.75 would better fit the purses of those attending.

Pres. Hamilton calls for all committee reports at the next meeting.

A general discussion is held on the West Jersey Chapter and the possibility of combining it with some other chapter.

Pres. Livermore of Bergen County Chapter introduced, remarking that after seeing how this meeting was conducted, he hoped to be able to instill some pep in Bergen County Chapter meetings.

Pres. Miller of Union County and Pres. Lehlbach of Essex County were also introduced by Pres. Hamilton.

Trustee Mueller of Essex County spoke on the matter of changing the name of the Association, pointing out that according to the constitution, the method used in voting on the change of name at the convention, was incorrect.

Trustee Mueller made a motion that a special meeting be called to vote on an amendment changing the name of the Association. A general discussion followed and instead of adopting the foregoing motion it was decided that at the next meeting Trustees be instructed by their chapters to vote as chapter delegates according to votes accredited to each chapter at the convention, upon the question of changing the name of this Association of THE NEW JERSEY SOCIETY OF PROFESSIONAL ENGINEERS.

Engineer Parsons read an article prepared for *The New Jersey Engineer* on changing the name of the Association.

Trustee Mueller opens discussion on matter of permanent quarters and asks for the ideas of the State Association. Engr. Weeks states that until the office of Executive Secretary is permanently established it is not felt that the Association can afford to, or would gain anything, by having permanent quarters in Newark.

Engr. Jacobs warned of the danger of the unionization movement among engineers and also suggested endorsement of all editorial articles appearing in *The New Jersey Engineer*.

Upon motion made and seconded it was decided that editorial articles appearing in *The New Jersey Engineer* should be approved by the Executive Committee.

Meeting adjourned at 11.00 P. M.

ERNEST F. WEEKS, *Sec. Treas.*

A complete list of standing committees for 1939 has been sent out by Pres. Hamilton, in blueprint form. If you have not received your copy, please advise the Secretary.

NEW YORK

ENGINEER WILLIAM L. A. ARCTANDER ELECTED PRESIDENT OF BRONX PROFESSIONAL ENGINEERS AT ANNUAL MEETING

Engineer William L. A. Arctander was elected President of the Bronx County Chapter, The New York State Society of Professional Engineers at their annual meeting held in the Concourse Plaza Hotel, Bronx, N. Y., March 9th.

The following officers and directors were also elected:

Engineer Paul Treutler—Vice President
Engineer Victor De Maria—Secretary
Engineer Solon E. Friedeberg—Treasurer
Engineer Arthur V. Sheridan—Director for 3 years
Engineer Samuel J. Kessler—Director for 3 years
Engineer Joseph B. Diamond—Director for 3 years
Engineer Jos. T. Houlihan—Director for 2 years

The officers and Directors were installed by Engineer Fred Zurmuhlen—First Vice-President of the New York State Society

of Professional Engineers, who stated that they must lead in new fields.

Retiring President Rudolph C. Lang gave a resume of the Chapter's widespread scope of activities and its cooperation with other professional and civic societies in promoting the best interests of the Bronx.

President Arctander stated the aim of the Chapter to "Adhere to the spirit of the Golden Rule and betterment of mankind thru the channels of the Engineering Profession."

Engineer Brother Aubert of Manhattan College and Engineer Alexander Haring, retired Professor of Bridge and Railroad Engineering of New York University are working on a plan for the dissemination of the ideals and aims of the Professional Engineers among the Engineering students of Manhattan College, New York University and Webb Institute, thereby to assist these young Engineers to become established in the Profession.

Engineer Raphael Smyth reported on proposed new State Legislation affecting the licensing of Engineers. He stated that it is not until after 8 years of satisfactory engineering education and experience that a person can become a Professional Engineer, thereby assuring competent Engineers for the protection of the public.

Engineer Lang proposed a resolution which was passed recommending the creation of a National Patent Committee to coordinate the work of the State Committees for Nation-wide protection of inventors and the public interest.

Engineer Samuel J. Kessler, Chairman of the Ethics and Practise Committee presented a tentative code of Ethics prepared for the guidance of Engineers which holds to high ethical practice for the Profession and to high standards for dealing with clients and the public.

Retiring President Lang was given a vote of thanks by the Chapter for his excellent leadership and many accomplishments during the past two years. Engineer Lang holds the unusual record of having attended all meetings during his terms of office.

KINGS COUNTY CHAPTER OF THE NEW YORK STATE SOCIETY OF PROFESSIONAL ENGINEERS, INC.

The regular meeting of Kings County Chapter of the New York State Society of Professional Engineers was held at the Brooklyn Engineers Club, No. 117 Remsen Street, on Thursday evening, March 16, 1939, at 8 p. m.

The nominating committee, consisting of Engrs. William Spivak, Chester R. Gardner, Julio Russo, John G. Foley and Fred. W. Schlottmann, presented a slate of nominees for officers, directors and the succeeding nominating committees.

Our delegates to the mid-winter meeting of the State Society held in Albany, March 10th and 11th, reported on that meeting.

According to the State Society's latest issue of the Analysis of Membership by County Chapters we lead all of the State Chapters in (1) the largest number of active members; (2) the largest number of members with dues paid up for 1939; and (3) secured the greatest number of new members in 1939. Let's keep up the good work, fellow members!

JAMES F. FAIRMAN, *Pres.* GEORGE A. DORFMAN, *Sec.*

BULLETIN
BROOKLYN ENGINEERS' CLUB
117 REMSEN STREET, BROOKLYN, N. Y.

The Regular Meeting of the Brooklyn Engineers' Club was held at the Club House, No. 117 Remsen Street, Brooklyn, N. Y., on Thursday evening, March 9, 1939. Paper No. 299 was presented entitled "Historic Development in Design and Construction of Subaqueous Tunnels" by Engr. Charles B. Winick, Member of B.E.C. and PWA Engineer on Queens Midtown Tunnel.

APRIL MEETING OF THE B.E.C.

Dr. Kirk, Professor of Chemistry, Polytechnic Institute, addressed our Club at the April Meeting. The topic he chose involved both timeliness and importance in view of present day conditions. Dr. Kirk discussed the import of Research as an Energizer of Industry.

B.E.C. MEMBERSHIP ROSTER

The Secretary is back on the job. His recovery, however, depends on how fast and voluminous the ads come pouring in for the World's Fair issue of the Club Membership Roster. If you have not already sent in your ad please do so NOW. It will contribute to the welfare of the Club and enhance the publication of the Roster.

More than 1,000 persons attended a testimonial dinner given in honor of Engr. John J. Moran, a member of the B.E.C., Borough Superintendent of the Division of Housing and Buildings, on February 26, 1939, at the Hotel St. George. The dinner was tendered by the Associated Builders of Kings County, Inc., and leaders in the architectural, engineering and allied trades of the building industry. Bernard Stolzenberg was chairman of the dinner committee, and was assisted by I. Orlian, President, and Jack Graller, Secretary and Treasurer, of the Associated Builders of Kings County, Inc.

It is with deep regret that we announce the death of two of our former members—*JOHN J. FLOOD,* retired borough railroad contractor, formerly Treasurer of Edwards & Flood, and *CHARLES W. McINENLY,* retired Board of Transportation engineer.

GEORGE A. DORFMAN
Editor and Secretary.

WESTCHESTER COUNTY CHAPTER OF THE NEW YORK STATE SOCIETY OF PROFESSIONAL ENGINEERS

CHAPTER NEWS

FRANCIS J. LAVERTY, *Editor*

Next Meeting

The Tenth Annual Meeting of the Chapter was held in White Plains in the Old Supervisors Chambers, County Court House, April 6.

The Johns-Manville Corporation, well remembered for the buffet lunch by Schraffts at their last presentatioin, showed their film "Heat and its Control" at the meeting. George Dandrow and W. J. McBurnie were again on hand.

As this was also the Annual Meeting of the Chapter, officers for 1939-1940 were installed, and refreshments were served. A photograph of those in attendance was taken.

A representative countywide attendance committee under the chairmanship of Jim Rundell and including the following, worked hard to bring out a record attendance: Andy Anderson, Gene Ash, John Avery, Howard Barnes, Bill Fisher, Paul Brienza, Ollie Collins, Franklin Henshaw, Frank Fowler, Ed Martin, Bill Wenzel and John White.

FLASH!

The following have been elected Directors for a three year term according to unofficial returns: Arthur J. Benline, John Avery and F. J. Laverty. There is a tie for the other Director. CONGRATULATIONS!

LAST MEETING

An attendance of nearly 30 members was present at a business meeting. Important events—(1) Appointment of a committee, Benline, Chairman; Stearns, and Krey, to arrange a testimonial dinner to Charlie Sells. (2) Following an explanation by Engineer Curry of Pleasantville—a committee including Engr. Curry as chairman and Henshaw and Wyman, was appointed to examine the possibility and desirability of a cooperative Planning Commission for citizen aid. (3) A resolution requesting an outside auditing firm be employed to determine the State Society receipts and expenditures was adopted and forwarded to the Albany Mid-winter meeting.

ALBANY MEETING

The Chapter was represented by a full complement of delegates to the Mid-winter meeting of the State Society. Joe Brady, Laverty, Anderson, Krey, Duffy and George Macbeth were in attendance.

The Nominating Committee for State officers includes Engr. Scanlon of Erie County, Chairman, Engr. Burke of Kings, Smyth of the Bronx, Dollard of Onondaga, and John Avery of Westchester.

The resolutions presented by this Chapter in reference to an audit and a Chapman memorial committee were presented to the convention by Andy Anderson and adopted.

Westchester is now the fourth largest chapter in the society. Only New York, Kings and the Bronx are larger.

A motion to equalize dues was defeated.

A bitter battle on a proposed bill to amend the license law was returned to the Legislative Committee.

NEWS

Jack Edelstein acted as chairman for the committee to canvass the votes cast for directors. Engrs. Merry Durkee and Frank Henshaw assisted.

The Constitution Revision Committee is hard at work. Harold Watt, Joe Brady and Arthur Benline are doing the work under the direction of John Avery.

Our genial John Avery, former treasurer, vice-president, president and general hard worker is confined to the Yonkers General Hospital. Best wishes from the Chapter, John, and we all look forward to your early return. What will a Chapter meeting be without John Avery?

The Treasurer's Report showed a balance of $629.13 at the March meeting.

Col. F. S. Greene, principal speaker at our annual dinner last November, who resigned as State Commissioner of Public Works last week, passed to his reward. The profession has lost a real engineer.

The sympathy of Chapter members is extended to Past-President Sells on the death of his mother.

NEW YORK STATE SOCIETY MEETS

The mid-winter meeting of the New York State Society of Professional Engineers Inc. was held Saturday, March 11th, at the Ten Eyck Hotel, Albany, N. Y.

Frederick H. Zurmuhlen, Vice-President of the Society, acted as toastmaster, and guests and speakers included: James F. Ronin, President of the Albany Chamber of Commerce; David B. Steinman, past president of the National Society of Professional Engineers; Dr. Milton S. Loomis, Assistant Commissioner for Higher Education, State of New York; Matthew O. Troy, Vice-President, General Electric Company; Arthur V. Sheridan, past president of the National Society of Professional Engineers.

The committee in charge of arrangements included: Alfred E. Roche, President of the New York State Society; Elmer C. Lawton, Director of Zone Five: Gardner C. George, President of the Albany County Chapter; Carl H. Robbins, President of the Rens. County Chapter; William B. Chadsey, President of the Schenectady County Chapter.

The Executive Committee constituting the Board of Directors, met Friday evening March 10, and Saturday morning, March 11th.

Committee reports were given by the following: Vice-President Johnson on membership; Engineer Stiles, Publicity; Engineer Lame, Legislative and Grievance Committee; Trustee Steinman, Ethics and Professional Committee; Engineer Davidson, Patent Committee; Vice-President Johnson on Practice Violations Committee; Director Irving Hochstadter, of the National Board; financial reports by Treasurer Corry and Financial Secretary Fox.

—

Edward T. Hager, new president of the Niagara County Chapter, New York State Society of Professional Engineers, Inc., presided at a recent meeting of that Chapter held at the Cataract House, Niagara Falls.

A history and description of the Niagara Falls sewage disposal system was given by City Engineer H. Wesley Clark.

The following resolution was passed:

> WHEREAS, The Niagara Chapter of the New York State Society of Professional Engineers has suffered irreparable loss in the passing of Henry S. Steele, a Past President and member of the Board of Directors, whose tireless efforts and loyalty for the welfare of the Profession were of inestimable value, now therefore,
>
> BE IT RESOLVED, by the Niagara Chapter that expressions of sympathy be transmitted to the bereaved family of Engineer Henry S. Steele, and,
>
> BE IT FURTHER RESOLVED, that this Resolution be entered upon the records of the Chapter, the original be presented to the Family and a copy be transmitted to the New York State Society, The AMERICAN ENGINEER and The *Niagara Falls Gazette*.
>
> J. W. NAYLOR, *Secretary*.

OHIO

The Ohio Society of Professional Engineers held its 60th annual three day meeting at The Netherland Plaza Hotel, Cincinnati, Ohio, February 8, 9, 10, 1939. The General Committee, its various divisions and their personnel, which had charge of the details and activities of the convention, were as follows:

General Chairman—Edward Larson, Cincinnati, Ohio.

Entertainment

H. C. Nutting, Chairman; J. R. Duffy, E. H. Fox, Al LeFeber; H. H. Mace, John Martin, George Wingerter.

Exhibits

Luke Brannon, Chairman.

Publicity

A. B. Backherms, Chairman; W. T. Bogert, E. B. Fauntleroy.

Registration

Houston Coates, Chairman: Daniel G. Hatmaker; Pusey Jones, Fred F. McMinn, Henry A. Nunlist.

Reception

W. Allen Stone, Chairman; E. G. Ankron, O. C. Barklow, George L. Bliss, Roscoe G. Bowman, G. C. Brooking, H. C. Church, C. W. Conklin, A. P. Cooper, J. A. Craven, Marvin L. Davis, Robert F. Eastman, John Eidt, H. F. Ferguson, Alex S. Forster, Harold H. Hawisher, Paul M. Holmes, Grover C. Kinley, R. H. Spencer, Julian S. Paxton, Henry G. Roy, William Schepflin, Grover C. Snyder, Cecil W. Stacy, Alexander R. Webb, Charles H. Wells, W. D. Young, F. R. Zethmayr.

Resolutions

F. L. Raschig, Chairman; Fred Cellarius, George W. Emery, B. G. Kesting, J. E. Root, Thomas J. Smull, Fred Swineford.

Tickets and Programs

J. E. Root, Chairman; Wayne A. Becker, Paul Goodell, H. A. Jahraus, H. L. Newhall, Elmer Steigelman.

Women's Hostess

Miss Mildred Pfister, Chairman; Mrs. A. B. Backherms, Mrs. Thornton Bogert, Mrs. Huston Coates, Mrs. D. G. Hatmaker, Miss Mary C. Hatmaker, Mrs. Edward Larson, Mrs. John G. Martin, Mrs. C. A. Mitchell, Mrs. H. C. Nutting, Mrs. Eugene Oster, Mrs. Frank L. Raschig, Mrs. J. E. Root, Mrs. Ethel Steiner, Columbus; Mrs. W. Allen Stone, Mrs. C. H. Turner.

—

New officers of O. S. P. E. for the coming year were to have been announced at the annual convention. The nominating committee selected the following list of candidates:

For President—Carlton S. Finkbeiner, Toledo; and Nelson J. Bell, Dayton.

For Vice-President—William C. Kammerer, Cleveland; Edward Larson, Cincinnati; O. W. Merrell, Columbus; and Prof. Harry E. Nold, Columbus.

For Treasurer—C. R. Hanes, Lima; and R. H. Spencer, Mingo Junction.

THE CLEVELAND ENGINEER

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March Engineer's Meeting, Thursday, March 23rd, at 7:30 P. M. Inspection Trip Iron Fireman Manufacturing Plant, 3170 West 106th Street (Near Lorain Avenue) also "Modern Trends in Combustion" by William C. Kammerer. Technicolor movies showing combustion conditions inside large power boilers, 500 h. p. boiler in actual operation, and special production machinery in operation are a few highlights of a meeting that is designed to have universal appeal.

LEGISLATION

The Registration Act is again in jeopardy. The following bills have been introduced concurrently in the House and in the Senate. House Bill No. 636, Mr. Apking, Cincinnati, title, To Enable Engineers Residents of the State Since March 26, 1934, to Obtain Licenses Without Examination. Senate Bills No. 172, Mr. Reiners, Cincinnati, title, To Amend Section 1083-12 G. C. Allowing Engineers and Surveyors Until June 11, 1940 to Obtain Licenses Without Examinations.

If either of these bills passes all of our efforts for professional recognition will have been in vain.

The Legislative Committee of the Ohio Society of Professional Engineers, ever alert, has detected the introduction of these bills. The twenty-eight chapters of the O.S.P.E. have been asked to contact their Senators and Representatives and urge the defeat of both bills.

Our Legislative Committee will contact all Senators and Representatives from Cuyahoga County. Every member is urged to write a letter of protest to each Senator and Representative from Cuyahoga County. It's the number of protests that counts. We must show our full strength to defeat these bills. A resolution of protest is now being drawn by our Resolution Committee.

NOMINATIONS

The Nominating Committee presents the following nominees for directors for the three-year period beginning May 9, 1939:

Chemical: F. P. Fischer and J. J. Wirts.

At Large: J. E. Atchison, A. F. Blaser, G. F. Fuerst, A. C. Neff, J. L. F. Ross, and J. C. Wenrick.

One director from the Chemical branch and three directors, At Large will be elected. Official ballots will be mailed with the April issue of *The Cleveland Engineer*.

Additional Nominations may be made by petition up to March 25, 1939, as provided in Article VI of the constitution:

Nominations by the Nominating Committee shall be certified to mittee, or through the written petition of not less than twenty-five Society members who are in good standing. There shall be at least two nominations for each vacancy to be filled.

The Nominating Committee shall be appointed by the President with the approval of the Board of Direction. The Committee shall consist of seven members, not more than two of whom shall be listed with the Society in the same branch of engineering or surveying.

Nominations by the Nominating Committee shall be certified to the Secretary, and shall be published sixty days prior to the An-

nual Meeting. Nominations by petition shall be filed with the Secretary forty-five days before the Annual Meeting.

Since only members in good standing may vote or sign petitions we suggest that petitioners secure not less than thirty names on each petition. This will assure a safe margin in the event that any unqualified names appear. For further details on petitions see Secretary J. J. Lucas.

BOARD OF DIRECTION

Below are listed the most important items of business transacted or discussed at five meetings—four regular and one special meeting—of the Board of Direction:

1. Pending Sate legislatioin destained to set aside certain registration requirements.—(House Bill 636 and Senate Bill 172 reported in full detail elsewhere in this issue.)

2. Affiliation with Ohio Civil Service Commission—It was decided that our Society affiliate with this organization and urge other local societies to do so.

3. O.S.P.E. salary schedule—It was voted to urge the Ohio Society to promote the adoption of this salary schedule by the State Highway Department.

4. Appointments to Resolutions Committee.—Engineers R. F. MacDowell, Walter Gerdel, and Wendell P. Brown were appointed to this important committee. Wendell P. Brown was appointed Chairman to succeed Professor Donaldson.

5. Candidates for Board of Direction.—It was voted to publish in the Cleveland Engineer biographical sketches of each candidate for the Board before the next annual election.

6. Professional Relation Committee.—This committee was instructed to consider a plan to promote State legislation to restrict to registered engineers the structural, mechanical, and electrical engineering services for buildings.

7. Telephone Listings.—It was reported that the O.S.P.E. has passed a resolution sponsored by C.S.P.E. concerning bold face type used by engineers in telephone and city directory listings.

SCHOLARSHIP BLANKS OUT

Cornell University recently announced that application blanks are available for the thirty McMullen Regional Scholarships to be awarded by the University next fall. These scholarships have an annual value of $400.00 and are awarded for the entire course of four or five years in Mechanical, Civil, Electrical, Chemical, or Administrative Engineering. Applications must be filed before April 1, 1939, on the official blanks.

Selections are made by the University on the basis of scholastic achievement, character, and general ability, with the help and advice of local committees of alumni in each of fifteen regions of the United States. Chairman of the Ohio Committees are Frederick W. Krebs, 7210 Stanton Ave., Cleveland, and Otto E. Hilmer, 3205 W. 8th St., Cincinnati.

The Cleveland Engineer will publish announcements of outstanding scholarships from other accredited engineering schools, if called to the attention of the editor.

NEW MEMBERS

We welcome into our Society and introduce to the membership the following new members:

John R. Cloyd, 19860 Battersea Blvd., Rocky River.
Eugene W. Gebhardt, 8022 Whitethorn Ave.
Harry H. Mall, 18301 Nottingham Road.
Richard Henry Schwendler, Jackson Street, Mentor, Ohio.
Paul H. Voth, 784 Eddy Road.

The Board of Direction of O.S.P.E. paused in the midst of a business meeting at 6:30 P. M., Feb. 9th, while Perry T. Ford, President of National Society of Professional Engineers, stepped to a microphone, set up in the meeting room, and gave a fifteen minute address "The Engineers' Contribution to Civilization," over a 126 station chain on N.B.C. system. We believe this is the largest radio hook up that has ever been accorded to the engineering profession. A WLW staff member stated that Engineer Ford was talking to a potential audience of 30,000,000.

Our Society presented six resolutions: For a Bi-Partisan Registration Board; For a Representative Method of Selecting Nominees for Vacancies on the Registration Board; For an Amendment to the Registration Act to Make Written Examination Mandatory for all Applicants for Registration; To Revise the Questionnaire Sent out by the Registration Board; To Declare it unethical to Use Bold Face Listings in Telephone and City Directories; To Urge the O.S.P.E. to Affiliate with Ohio Civil Service Council.

The first of the above resolutions failed to pass the Resolutions Committee and the last one was referred to the Board of Direction. The rest of our resolutions were approved by the Resolutions Committee and adopted on the floor of the convention.

ADDRESSES WANTED

We are giving below the incorrect, but last known, address of several members. Any member knowing the correct mailing address of these members, please telephone John J. Lucas, Secretary, MAin 4600:

C. C. Carson, 9415 Clifton Rd., Cleveland; Louis B. Delemater, 1310 Mathews Ave., Lakewood; R. J. Edwards, 3620 Ingleside Rd., Shaker Heights; Earnest H. Frey, 1825 Colonade Rd., Cleveland; Murray C. Goddard, 11320 Hessler Rd., Cleveland; Edward C. Stephens, Box 225, Olmstead Falls; Richard S. Miller, 11118 Clifton Rd., Cleveland; Charles E. Reyner, 10720 Carnegie Ave., Cleveland.

ENGINEER—WHAT!

An analysis of several "Who's Who" directories shows that the word "engineer" is employed in more than 2,500 different titles, including such classifications as bank-management engineer, college engineer and export engineer. *Collier's* 2-11-39.

CONNECTICUT

THE CONNECTICUT SOCIETY OF PROFESSIONAL ENGINEERS, INC. REPORT OF THE STATE MEMBERSHIP COMMITTEE. MARCH, 1939.

The objective of the CONNECTICUT MEMBERSHIP COMMITTEE is to have all legally qualified and truly ethical Professional Engineers in the State of Connecticut, enrolled as members of the CONNECTICUT SOCIETY OF PROFESSIONAL ENGINEERS and the NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS, INC. Of course, this is unattainable immediately, so the hoped for results are to enroll all of the registered men who are up and coming with a broad interest in life and in the improvement of their profession and its economic status through effort and unity.

The minority, with sewed up pockets, the "Aginists" (Those who are "agin" everything), they that follow false prophets, those who only wanted their P. E., and got it through a "Grandfather clause," and a few other antique mossbacks (regardless of physical age) who are so immune to progressive ideas that they never should have been engineers, after several approaches from the Membership Committee should be classified, tagged and consigned to the shelf of oblivion. Our membership campaign in Connecticut provides for just this and after all, while "hitch hikers" are a load, time will ultimately eliminate those parasites that we now have.

Improved educational methods, better registration laws and the advancement of professional ethics and principles brought about through the efforts of our Society will eventually produce, by selective processes, a profession with a better inherent, basic human composition than we can now claim for it. Therefore, we feel that Membership Committees should not worry about the minority that they find backward, but should expend their efforts in interesting the really worthwhile non-member engineers in our work. The others we can forget.

From September, 1934 to December, 1938, the only Chapters in Connecticut were the Stamford and Bridgeport Chapters. Getting new members is not an easy proposition if there is no local interest and representation. With this in mind, the Membership Committee contacted on December 1, 1938, members who resided in Waterbury and got them to organize themselves into a new Chapter, known as the Waterbury Chapter, Connecticut Society of Professional Engineers. The officers being as follows: President, Eng. Herbert H. Scott Smith; 1st Vice-President, John C. H. Wendes: 2d Vice-President, Eng. J. H. Roberts; Treasurer, Eng. Wendall P. Vial; Secretary, Eng. Frank E. Kliest; State Director, Eng. C. T. Wilson.

. . . . . .

Engineer Harry E. Harris, National Director from Connecticut gave a splendid and timely twenty-minute talk relative to a bill before the Connecticut State Legislature which would put the Connecticut Board of Registration and all other licensing boards (except the legal profession) under the control of a single Executive Secretary, the objections to which are obvious to all Engineers and need not be mentioned here. However, Engineer Harris substantiated Engineer Zurmuhlin's talk to the effect that if the Professional Engineer wishes to retain his professional status, he must shake himself loose from his lethargic complex and find out what the other fellow is doing and protect his interests in the Legislative Bodies.

These talks were followed by a moving picture of the hurricane which swept over New England, September 21, 1938. This meet-

ing had a large attendance of Registered Professional Engineers, despite the fact that there were two other meetings of engineering organizations held that same night in Waterbury.

The next move of the Membership Committee was formulated on the night of this Waterbury meeting by members who reside in Hartford, and who were anxious to start a Chapter in their locality. With their enthusiasm, a Chapter was organized by them in Hartford, with the help of the Membership Committee, known as the Hartford County Chapter, on January 19, 1939, with officers as follows: President, Eng. Robert W. Loomis; 1st Vice-President, Eng. Percival L. Davis; 2d Vice-President, Eng. Henri b. Van Zelm; Secretary-Treasurer, Eng. Wm. J. Carson.

. . . . . .

These and other proposals came in from various sources without restriction to the Society to be considered at this meeting, but were not sponsored or initiated by the Society or its Committees. Mimeographed copies were distributed and each item read in turn by a chosen reader. After discussion, the sense of the assembly on each question was taken and the matter referred to the Legislative Committee of the CONNECTICUT SOCIETY OF PROFESSIONAL ENGINEERS for final action and disposal. Subsequent action by the Committee was principally based on the views and votes at this Forum and their legislative program laid out accordingly.

These meetings resulted in the enrollment of about twenty new members with reports that many more are about to enter the CONNECTICUT SOCIETY OF PROFESSIONAL ENGINEERS.

As the two new Chapters get under way and proceed to function under their own steam, new members who reside in these territories will gradually enroll.

Two more Chapters are now being planned, New Haven and New London. This will about complete the work in Chapter organization and it will be necessary for them to expand within their own territory.

CARL GOTTHARDT, CHAIRMAN, STATE MEMBERSHIP COMMITTEE,
CONNECTICUT SOCIETY OF PROFESSIONAL ENGINEERS.

A Brief History of the Registration of . . .

(Continued from page 14)

for the Legislature.

My personal feeling is that our State Board works under several handicaps. The work would be very greatly aided if it were possible for them to employ, perhaps for only part time, a registered engineer of matured experience and judicial temperament, who could review the applicant's qualifications, and prepare detailed reports the aplicant's qualifications, and prepare detailed reports for submission to the members of the Board so that they would be relieved of the very great burden of giving a large amount of time, for which there is no adequate compensation, to perform this particular service. Such an employed engineer could also make impartial investigations of charges brought against practicing engineers and submit his findings to the Board for their help. Employment of such a man would not necessarily displace Miss Nickles or anybody who might succeed her, who as a full-time employee, looks after the Board's administrative affairs at Harrisburg.

In offering these suggestions, I recognize that it would be particularly difficult at this time to introduce such amendments to the State appropriation bills because of the very great pressure that is being exerted by the Governor to effect economies, as Mr. Myers and I both well know from our efforts to persuade Mr. Ellwood Turner, who at the time I refer to was Chairman of a Subcommittee for Appropriations, not to make the changes that were incorporated in the House Bill No. 22 of the Session of 1933, at which time economy was very much in the fore-front, I believe that this is a matter which should not be lost sight of and on which action should be secured whenever the time may be deemed to be appropriate.

While I expressed my opinion, under date of December 4, 1936, to Mr. Myers as not believing that it would be wise to take any further steps leading to the amendment of our present Act, I believe that it would be well to consider the several phases of our Act and determine whether they could be strengthened effectively. However, as I have observed in the workings of registration in Pennsylvania in the past, the principal difficulties that have developed have not been due to weakness of the Act but rather to political obstructions brought about chiefly by disappointed applicants who were refused registration. Such obstructions would not be cured by amendments and they can only be kept in check by the well organized cooperation of the members of all the engineering societies in the State.

I believe the work of our Board would be greatly aided by the earnest cooperation of all members of the engineering profession, first, in the submission of truthful statements regarding applicants for registration, the tendency in many instances that I have known being to gloss over statements that were plainly built up and magnified so as to misrepresent to some degree the applicant's experience. I found, through my experience as a member of the Board of Directors of the American Society of Civil Engineers, where I reviewed many hundreds of applications for membership, and also in quite a number of cases of applicants for reigstration which were brought to my attention by the State Registration Board in an effort to secure dependable information, that many of our engineers of excellent character and of high standing in the profession hesitate to go on record as disagreeing with what they know would be the truth in regard to some of the applicants, due to what, I feel, is a mistaken idea on their part of their duty. I believe that the requested information should be answered frankly, truthfully, and in an endeavor to give the Board reliable, dependable information and personal friendship should not lead to endorsing unsupported experience statements. Also, it seems obvious to me that it is the duty of the practicing engineers, when matters come to their attention which lead them to feel that practicing engineers are guilty of violation of the ethics of the profession, or of illegal practice, that they should secure all the information possible and to lay these matters before the Board. It might well be that we should develop these matters in the manner adopted by the Bar Association by the appointment of committees of registered engineers to consider reported delinquencies of engineers and report in a similar manner to the State Board.

I wish to take this opportunity to pay tribute to the late Richard L. Humphrey who did so much to bring about the enactment of the several bills under which our State Board was created, and whose unselfish devotion to the work of organizing and administration, did so much to establish the work of the Board on a firm basis.

Credit is also due to a very active group of engineers who cooperated with Mr. Humphrey and helped to establish the Registration of Professional Engineers on a sound basis.

I also take this opportunity to assure you of the interest and support of the Engineers Club of Philadelphia in all measures necessary to the maintaining of the practice of engineering on a high plane.

In conclusion, I wish to express my appreciation of your kind invitation to come here to speak to you this evening, and I hope that I have been able to bring some thoughts to your attention which can be helpful in the working out of our mutual problems.

National Society News

(Continued from page 3)

reconditioning inspector need be a licensed professional engineer or architect only if the proposed alteration on which he will perform the duties outlined costs more than $10,000 or involves a change affecting the structural safety of the building or structure. (Education Law. Sections 1450, 1476)

"Assuming in the second question that the work in contemplation involves the practice of engineering or architecture as defined by law, it would seem to be contrary to statute for a lay person to agree to render or bring about the performance of service including such professional service and to delegate the performance of the professional service to a qualified practitioner.

Very truly yours, (signed) John J. Bennett Jr.
Attorney General."

DRAFTS OF SUGGESTED LEGISLATION—To Amend the Civil Practice Act Sec. 1550. Fees of Surveyor or Commissioner in Action for Partition or Dower.

A licensed surveyor, employed as prescribed by law, in an action for partition or dower, or to determine dower, is entitled to (five) *twenty-five* dollars for each day actually and necessarily occupied in surveying, laying out, marking, or mapping land therein. Each assistant so employed is entitled to (two) *seven* dollars *and fifty cents* for each day actually and necessarily occupied in serving under the surveyor's direction. Each commissioner appointed as prescribed by law to make partition or admeasure dower is entitled to five dollars for each day's actual and necessary service.

Explantion:

Matter underlined is new; matter in brackets is old to be omitted.

COMENT—To amend Sec. 1550 in relation to fees for surveying, laying out, marking, or mapping land for the purpose of eliminating obsolete fees which have not been revised since the original enactment more than twenty years ago.

OHIO—Opinion No. 6467: Syllabus: Under the provisions of Sec. 1083-1, et seq. General Code, a person who has not been duly licensed as a registered professional engineer may not advertise in the state of Ohio that he is a Civil Engineer or make use of some other similar title.

"State Board of Registration for Professional Engineers and Surveyors
1113 Wyandotte Building, Columbus, Ohio

"Gentlemen:

"This will acknowledge receipt of your request for my opinion which reads in part as follows:

"The State Board of Registration for Professional Engineers is desirous of securing an opinion from your department relative to the illegal use of the term 'engineer' as used in various telephone directories by men who are not legally qualified to practice engineering as set out in General Code Sections 1083-1 to 1983-26, inclusive."

You enclosed a letter from the Cuyahoga County Society of Professional Engineers, which reads in part as follows:

"Our Board of Direction requested that we obtain through you an opinion from the Attorney General:

"1. If an individual lists himself as a 'Consulting Engineer,' 'Civil Engineer,' 'Sanitary Engineer,' etc., and is not registered in Ohio, can we bring charges against him under Rule XVI just as readily as if he listed himself as 'Consulting PROFESSIONAL Engineer,' 'Civil PROFESSIONAL Engineer', 'Sanitary PROFESSIONAL Engineer,' etc".

The Legislature, in 1933 (115 O. L. 335) enacted a comprehensive program for the regulation of professional engineers and surveyors. In 1935 (116 O. L. 174), the Legislature amended this law, but these amendments are not material to your inquiry. Sec. 1083-1, General Code, is particularly pertinent to your question, and reads as follows:

"***For the purpose of this opinion, I assume that the persons in question are not exempted from the provisions of the law. For such exemptions see Sec. 1083-20, General Code. An examination of the above quoted Sec. 1083-1, clearly discloses that what is forbidden to an unlicensed person is not only the actual practice of engineering but also the holding out to the public that one ie a professional engineer. Such a broad aspect concerning these license laws is not unique. See for example, Sec. 1335-5, General Code. The terms 'Professional Engineer' and 'practice of professional engineering' are defined in Section 1083-2, as follows: **

"***Sec. 1083-23, General Code, which is the penal section of this license law, reads as follows: ***

"***Legislation similar to this license law has been uniformly upheld as a proper exercise of police power. No doubt the Legislature felt that in the interest of the safety of the general public, not only the actual practice of engineering should be regulated, but also the public should be protected from persons who hold themselves out as engineers. In other words, the public should be protected from the possibility of deception by unlicensed persons.***

"***While it is true as stated in the letter addressed to you, that the individuals in question do not use the word 'profesional', it is nevertheless the intent of the person who calls himself for example, 'civil engineer', and inserts his name with such title, in a telephone directory, to convey the impression that he is a 'professional civil engineer'. It is rather difficult to imagine why a person would list himself in a telephone directory as a 'civil engineer' unless he intended to convey the impression that he was a professional engineer and would practice such profession if called services are for hire. In any event the language of Sec. 1083-1 is very broad and it can be safely said that the Legislature intended to prevent anyone conveying the idea that he is a professional engineer unless he is duly licensed as such, under the provisions of Sec. 1083-1, et seq., General Code. It would seem that the examples mentioned in your letter violate not only the spirit but the letter of the law as expressed in Sec. 1083-1, General Code.

"It is therefore my opinion in specific answer to your inquiry that, under the provisions of Sec. 1083-1, et seq., General Code, a person who has not been duly licensed as a registered professional engineer, may not advertise in the State of Ohio that he is a civil engineer, or make use of some other similar title."

Respectfully, John W. Bricker, Attorney General"

Important Decision

(Continued from page 15)

or architect to pay such engineer or architect a percentage of his fee or a flat fee, keeping in mind the fact that the inspector is himself paid a percentage of the cost of the job?

Replying to your first question I should say that a fee reconditioning inspector need be a licensed professional engineer or architect only if the proposed alteration on which he will perform the duties outlined costs more than $10,000 or involves a change affecting the structural safety of the building or structure. (Education Law. Sections 1450. 1476).

Assuming in the second question that the work in contemplation involves the practice of engineering or architecture as defined by law, it would seem to be contrary to statute for a lay person to agree to render or bring about the performance of service including such professional service and to delegate the performance of the professional service to a qualified practitioner.

Very truly yours,
(Signed) John J. Bennett, Jr. *Attorney-General.*

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